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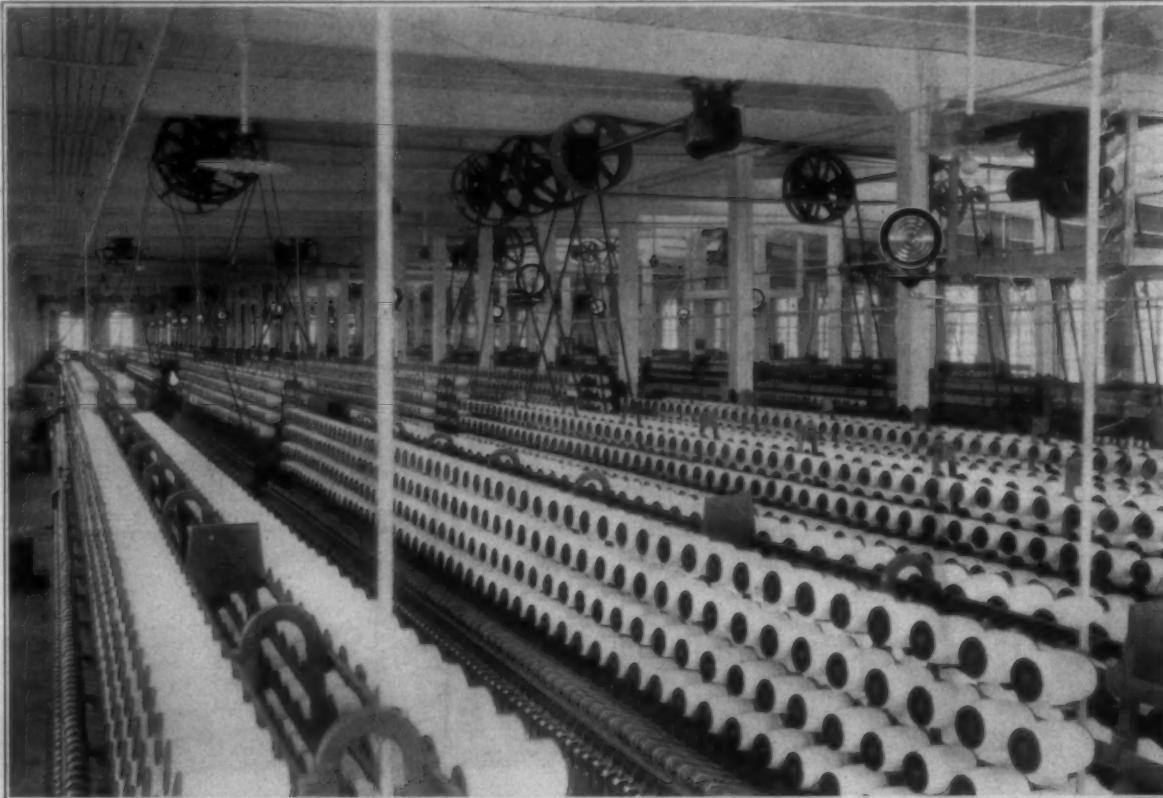
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SOUTHERN TEXTILE BULLETIN

VOL. 32

CHARLOTTE, N. C., THURSDAY, MARCH 31, 1927

NUMBER 5



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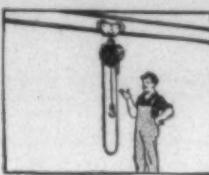
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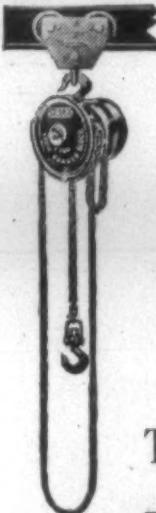
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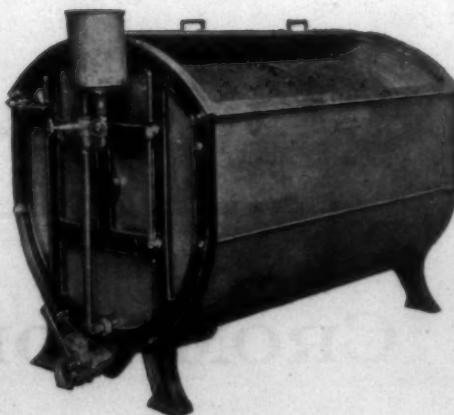
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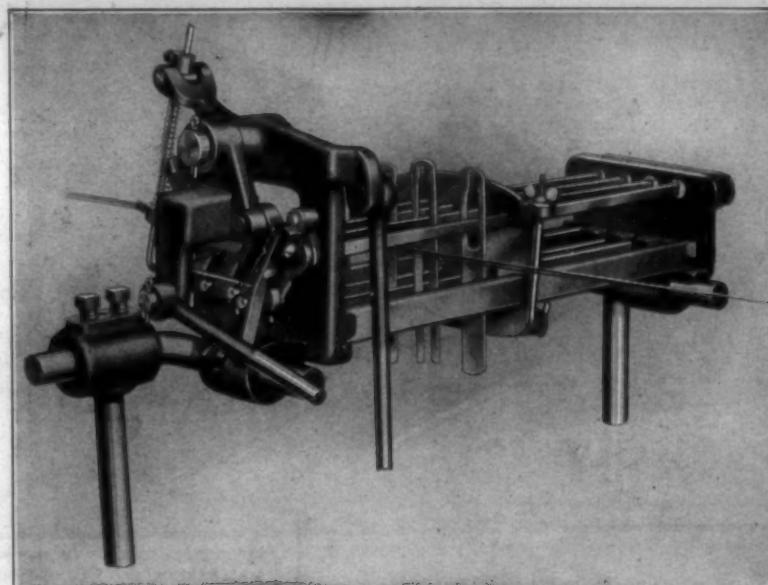
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SOUTHERN TEXTILE BULLETIN

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VOL. 32

CHARLOTTE, N. C., THURSDAY, MARCH 31, 1927

NUMBER 4

Obtaining Managerial Control By Disclosing Abnormal Factors of Cost

In presenting my subject to you today, I am going to imagine that you are already engaged in the textile industry, as managers or executives of cotton mills. I am presuming that you will be interested in any practical plan that will assemble your weekly production and expenditures, and show them up in such a manner as to aid you in managing your business.

When we speak of "management," in one sense of the word we mean "control." Management means control, and when we control a business, we mean that we control the abnormal, or the unusual, tendencies of that business. We don't mean that we control its normal tendencies. Such tendencies are usually taking care of themselves and do not need to be managed or controlled.

As it is expected that you will be managers or executives of cotton mills, I believe you will want to know how it is practically possible for an accounting department to give you each week information regarding your actual production and actual expenditures, and how it is possible to present this information to you in comparison with possible productions and necessary expenditures, so as to aid you in determining where subnormal conditions of production and abnormal conditions of expenditures exist in the mill.

I am not going to spend any time in trying to show you, even if I could, how it is possible by accounting and mathematical sleight-of-hand to obtain the actual cost of making any quantity, style or construction of cotton goods. I am not going to do so for, frankly speaking, I have never been sold upon the practical value of spending much time in trying to get the cost of something which, when based upon actualities is changing every day and hour in the week, and when you are skillful enough to obtain it you generally find that it contains very few elements in it that will aid you in managing the business. Productions and expenditures are constantly changing in a cotton mill, and the very process that it is necessary to go through to obtain the actual cost, eliminates to a great extent the possibility of separating the cost of a subnormal production and the amount of abnormal expenditures from the normal cost; the very thing in which an executive is most in-

Lecture by Frederick Moore, C. P. A.,* during Textile Week at N. C. State College, Raleigh, March 25.

terested from the standpoint of management.

Again, for another reason, I am not going to go into this matter of determining the actual cost. That reason is this: The majority of manufacturers of cotton goods in the South are making a staple line of goods. These goods are made to be sold for what the market will bring for them—generally through the medium of sales agents; or they are made under sales orders, the prices of which are largely determined in advance by prevailing market conditions. The manufacturer cannot, therefore, fix a price at which his goods are to be sold, which price would be based upon the actual cost, plus a reasonable profit. He is not, therefore, from a selling standpoint, anxious that his accounting department spend much time in getting a detailed actual cost of his goods, unless in getting that cost, that department arrives at information which will assist him in controlling and in reducing the cost.

The executive may want to know, however, the average actual cost of making his entire product, based upon actual production and actual expenditures. Most mills obtain this cost. It is merely a matter of production and expenditures. The executive may want to go still further and require his accountants to obtain the average actual cost of making every staple or construction of goods in his mill. He may want to take the time to do this. But, whether or not he does, there are two things from the standpoint of management that he has got to know: He has got to know:

First: How much more he is expending in each important operation of the mill than he ought to be expending.

Second: How much less production he is getting on each hank roving, yarn count, or cloth construction, than he ought to be getting.

Unless the accounting department is giving him at least this information, no executive can claim that that department is assisting him in controlling his production and expenditures.

The prime purpose of any cost system, or any method of arranging cost data, is that of aiding the man-

agement, either in reducing the cost or in making such adjustments or changes in the mills that will eventually add to his profit. Cost systems or methods whichever you prefer to call them, should be nothing more or less than a sort of machinery for turning out quickly cost information that will be of practical benefit to those who are responsible for improving the quantity and quality of production and controlling the amount of expenses or the absorption of expenses in the mill.

They should be devised and arranged largely upon the principle of exceptions, and instead of being arranged in such a manner that eventually they will gather together a great array of unmanageable facts, should be planned in such a manner that reports to managers or executives can be quickly prepared from them; reports that will clearly and unmistakeably point out to them where unsatisfactory or unfavorable conditions exist.

This principle of exceptions that I have referred to is one of the most important principles that can be made use of in the manufacturing and business world. It was indirectly referred to a number of years ago by George Horace Lorimer. In his "More letters of a self-made man to his son," he gives us this bit of advice: "In the first place, you don't have to bother very much with the things that are going all right, except to try and make them go a little better, but you need to spend your time smelling out the things that are going all wrong and laboring with them until you have persuaded them to lead a better life." Mr. Lorimer brings out the fact that the attention should be concentrated upon the exceptional, irregular, or unsatisfactory facts of business and that the attention should be directed to the normal facts only to the extent of noting that they are normal. In cotton manufacturing, this would mean concentrating our attention, both from a textile and from an accounting standpoint upon the subnormal conditions or tendencies of production and upon the abnormal or unusual items of expenditures, and that little time should be spent in developing and examining into data concerning which it is apparent there is nothing unusual.

The manufacturer or executive's

interest in cost accounting is confined primarily to knowing how where these unfavorable, or unusual conditions exist, and in knowing how much these conditions, if overcome, would represent in a savings in dollars and cents. He will want to know regularly the following:

First: To what extent the separate production of each hank roving, yarn count, or cloth construction, etc., is falling below a normal basis of production. This basis would be the productive possibilities of the spindles, spools, looms, etc., as determined by the manufacturer himself or his plant superintendent, and from which a normal allowance is made for breaking, doffing, stoppage, etc.

Second: To what extent the payments for labor in each separate department, such as carding, spinning, spooling, warping, ashing, tying-in, weaving, clothroom, etc., are exceeding a minimum or predetermined for the payment of labor. This basis might differ in each department and in each separate operation of each department, but would be in each case established, either by present conditions or by past performances. In the card room, the slubbers, intermediates, and speeder tenders might be paid by the hank, while the balance of the mill hands in this department might be paid by the hour. The latter, however, would be rated for the purpose of getting a normal cost at so much per hank, and applied to the total hanks made on slubbers, intermediates, and speeders. In the spinning room, the spinners might be paid by the side, while the doffers and other mill hands in this department might be paid by the hour. The latter, however, would be rated for the purpose of getting a normal cost, at so much per side, and applied to the total number of sides operated by the spinners. In the weave room, the weavers might be paid by a fixed rate per thousand picks on each construction of goods woven; while the loom fixers and other helpers in this department might be paid by the hour. However, for the purpose of getting a normal cost, the latter might be rated at so much per one thousand picks and applied to the total number of picks made by the weavers. In each operation or department of the mill, it is not a difficult matter to fix a minimum or predetermined basis for the payment of labor and to determine to what extent there are departures there-

*Of Geo. G. Scott & Co., Charlotte, N. C.

SOUTHERN TEXTILE BULLETIN

Thursday, March 31, 1927.

from in the actual payments of labor.

Third: To what extent there would have been an additional saving in labor and where that saving would have been made in each separate department of the mill if the normal production that was anticipated in each of these separate departments, and as determined in the first paragraph, had been realized.

Fourth: To what extent there would have been a saving, and where that saving would have been in the overhead items of salaries, insurance, taxes, etc., if the production that was anticipated on each group of looms, making a certain construction of goods, and as determined in the first paragraph, had been realized. The total normal overhead items for the purpose of control are rated at so much per loom per hour, and need not be considered in rela-

tion to any other department, except the weave room, where all the looms are the principal centers of production in the mill.

A cost accounting department may have made many duties to perform, but the most important duty that it can perform is that of giving this sort of information to an executive. The latter, while familiar with the various classes and amounts of expenditures, and who must receive this latter information in such a form as to enable him to connect it with what he has perceived in the mill by observing physical conditions.

In the past, I am inclined to think that the average mill bookkeeper has been spending so little in classifying his expenses, in distributing them to the various operations by widely different theories of allocation and in noting how

the different parts of his system are interrelated and reconciled with each other that he has acquired a bad habit.

He has acquired the habit of thinking entirely too much of the form and the structure of his accounting system, and in thinking too little of the purpose for which it was, or should have been, devised and the path into which it should be directed. The prime purpose of the cost accounting department, as I have already said, should be that of preparing and presenting cost data in such a manner that subnormal and unusual conditions of production, and exceptional or irregular conditions of expenditures will stand out clearly to the executive or manager and be an aid to him in securing a better and a greater production at a lesser cost.

I am of the opinion that there are

not more than a score of cotton mills in the State of North Carolina, whose plan or method of costing is arranged in such a manner that it can consistently assist an executive, or a mill superintendent, in "smelling out the things that are going all wrong," or can tell them what is the cost in dollars and cents of these unsatisfactory conditions of manufacturing that are constantly cropping out, as well as the causes that have given rise to them.

As mill executives, which of these questions would you ask your accounting department, and what knowledge would you want it to give you in respect to your mill operations? Would you just want to know how much you spent; where you spent it; and how much product you made, and what it cost you; or would you want to know how much you

(Continued on Page 34)

A	BASIC DATA		WARP	FILLING				TOTAL
	100% PRODUCTION	NO. 24		NO. 12½	NO. 11	NO. 8	NO. 6½	
NUMBER OF SPINDLES OPERATED	5,181	1,912	55	102	1,223	8,473		
100% PROD. PER SPINDLE HOURS	110	2,685	5,705	7,414	11,827	14,556	5,220	
100% PRODUCTION—POUNDS		13,910	10,907	352	1,206	17,801	44,231	
ACTUAL PRODUCTION		11,447	9,680	1,008	15,180	37,667		
PRODUCTION PERCENTAGE		82.281	88.75	86.49	83.58	85.27	85.15	

B	BASIC DATA		WARP	FILLING				TOTAL
	STANDARD PRODUCTION	NO. 24		NO. 12½	NO. 11	NO. 8	NO. 6½	
NUMBER OF SPINDLES OPERATED		5,181	1,912	55	102	1,223	8,473	
STAND. PROD. PER SPINDLE 90% 110 HRS.		2,416	5,134	6,673	10,644	13,100	4,698	
STANDARD PRODUCTION—POUNDS		12,517	9,816	367	1,086	16,021	39,807	
ACTUAL PRODUCTION		11,447	9,680	352	1,008	15,180	37,667	
BELOW OR ABOVE STANDARD		1,070	136	15	78	841	2,140	

C ACTUAL BASIS		
YARN NO.	ACTUAL PRODUCTION	POUNDS PER SPINdle
24	11,447	2,209
12½	9,680	5,062
11	352	6,400
8	1,008	9,882
6	15,180	12,412
TOTAL	37,667	4,445

D	STANDARD BASIS			PRODUCTIVE LABOR	NON-PRODUCTIVE LABOR	TOTAL	SPINDLES BLOW EXCESS OF NORMAL ALLOWANCE
	YARN NO.	ACTUAL PRODUCTION	POUNDS PER SPINdle				
24	11,447	2,416	4,737	.02225	105.39	.06222	294.73
12½	9,680	5,134	1,885	.04009	75.56	.06222	117.28
11	352	6,073	53	.04009	2.12	.06222	3.29
8	1,008	10,644	95	.04009	3.80	.06222	5.91
6	15,180	13,100	1,158	.05906	68.39	.06222	72.05
TOTAL	37,667	4,751	7,928	.03219	255.26	.06222	493.26
							748.52
							.01987
							545

SPINNING ROOM

(Asterisks represent either departures from normal or savings that might have been affected if normal production had been realized.)

E	OPERATIONS	ACTUAL PAY ROLL	STANDARD PAY ROLL				VARIATION
			NO. OF SPINDLES	NO. OF WEEKS	STANDARD RATE	STANDARD PAY ROLL	
WARP SPINNERS	24	90.53	411		.21	86.31	4.22
	DAY						*
	NIGHT	30.36	138		.21	28.98	1.38
	TOTAL	120.89				115.29	5.60
FILLING SPINNERS	12-11-8	60.92	174		.34	59.16	1.76
	DAY						*
	NIGHT	24.50	70		.34	23.80	.70
	TOTAL	85.42				82.96	2.46
FILLING SPINNERS	6½	55.37	123		.43	52.89	2.48
	DAY						*
	NIGHT	20.25	45		.43	19.35	.90
	TOTAL	75.62				72.24	3.38
NON-PRODUCTIVE LABOR		378.69	708		.50	354.00	24.69
	DAY						*
	NIGHT	198.12	253		.60	151.80	46.32
	TOTAL	576.81				505.80	71.01
OVERSEERS		21.45			21.45	21.45	-0-
TOTAL NON-PRODUCTIVE		598.26			527.25	71.01	
TOTAL LABOR		880.19			797.74	82.45	

Period Week Ended 11-20, 1926

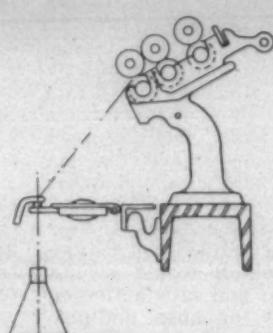
F VARIATION BETWEEN ACTUAL AND STANDARD LABOR COST			
	POUNDS	PER POUND	AMOUNT
ACTUAL PAY ROLL (SEE FORM E)	37,667	.02336	880.19
STANDARD PAY ROLL (SEE FORM D)	37,667	.01987	748.52
VARIATION	37,667	.00349	131.67

G CAUSES OF VARIATION BETWEEN ACTUAL AND STANDARD LABOR COST			
	SPINDLES	RATE	PRODUCTIVE LABOR
ABOVE NORMAL		.02794	15.23
BELOW NORMAL	545	.06220	33.99
DECREASE			49.22
INCREASE			82.45
TOTAL VARIATION			131.67

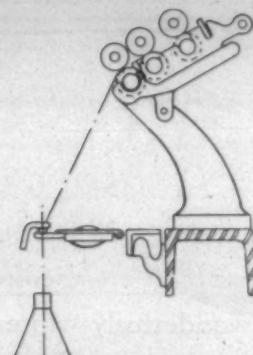
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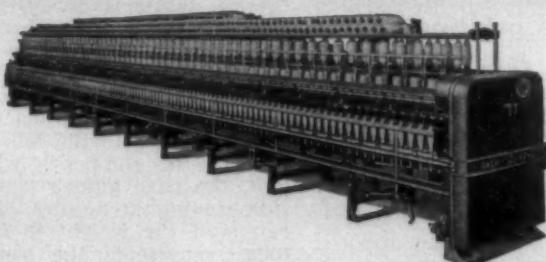
Old Style Roll Stand
50° angle between
thread guide and yarn



New Style High Roll Stand
68° angle between
thread guide and yarn

OUR NEW HIGH ROLL STAND
Decreases the Strain
on the Yarn

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—a fine type of enamel for general interior finishing on walls or wood-work. May be tinted to any shade desired. Very economical.



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Knitting of True Rib Fabrics

Lecture by Walter Larkin, of Fidelity Machine Company, at Textile Conference, N. C. State College, Raleigh, March 4.

IT has been said that "necessity is the mother of invention." This old saying certainly applied to William Lee of Woodboro, a suburb of Nottingham, England. In the year of 1589, Lee, who had married outside of his social scale, found himself faced with the real task of earning his own living in addition to that of a young wife. As he pondered on various methods of working out his problem as his wife sat knitting, the idea occurred to him that a machine might be produced for making knitted fabric. As a result of Lee's great necessity to obtain definite results, he actually did develop and build a machine which knitted plain fabric.

This first fabric produced on one set of needles, which is the same principle on which so many fabrics are still made today, met the need of his day for the time being. As the people became more familiar with the advantages of the knitted fabric, especially for hosiery, they also appreciated the need of a more elastic stitch which would give a standard of wear and satisfaction on certain parts of the hose, not possible with a plain fabric. This requirement brought forth a machine with a double set of needles which were set at an angle, one to the other, drawing their loops opposite each other. In the single set of needles the fabric has not the required formation to allow the uniform give and return; whereas, on the rib stitch made with two sets of needles, the double stitch gives an effect comparable with that of an accordion. This principle, developed in the year of 1758 by Jedeiah Strutt, has stood the test to this day, and particularly in men's half hose and in the fancy cuffs which are so popular on children's and men's golf hose, the rib fabric is always demanded when the individual becomes familiar with the difference in character of the two fabrics.

The first method of producing true rib was on a flat top machine with a weight hung to the fabric to pull it away from the needle while being knit, the yarn guided from side to side, feeding the needles. The application of the weight to the fabric today represents the basic difference between fabrics known as true rib made on two sets of needles and rib fabrics still made on the two sets of needles and rib fabrics still made on the two sets of needles but without the necessary accurate and uniform pulling action.

More speed being desired, the two banks of needles were placed; one in the cylinder, the other in the dial. Set thus at right angles to each other, the yarn passed around the cylinder feeding the needles in one continuous rotary motion and adding greatly to the output of the machine. This brought the need of casting aside the original weight hung to the fabric. In its place rollers gripped the fabric being driven by the machine, keeping a constant weight to pull the work from the needles. Because of the variety of knitting machines which have since been doing of the work from the needles, developed to give this accurate pull-

the present day ribber is developed. The function of the pulling mechanism, known at the present time, as the take-up is very important, and the need has developed a mechanism extremely accurate. There are, of course, several different types of take-up mechanism which may be classified under the type that operate by the worm and wheel and the other by means of planetary gearing. The latter has the advantage of being incased in dust-proof enclosure, allowing the application of a constant bath of lubricant, making a very sensitive mechanism requiring no attention and doing its work perfectly.

The building of the round frame, as it is called, has not changed the functioning of the needles as they are operated in relation to each other as in the beginning, but produce a tubular rib in place of flat fabric.

The tubular rib, being fitted for hosiery, brought forth many ideas, both in the fabric and methods of functioning the needles to produce various effects. However, the smooth, even true rib of very fine textile is in great demand and making of this grade calls for a high state of development on the part of the machine, as the needles must act in just the right relation; all to draw the same amount of stitch; all the same length and size of hook to prevent lines along the wales; the yarn must give the same amount of tension at all times to prevent rings around the fabric; the needle cams smooth and at the right angle so as not to cause the needles to vary the length of their stitches. These are some of the things necessary to give the proper results.

The holding of the dial and cylinder needles central with each other, to prevent their rubbing together, was by the use of lugs, or dogs, on the lower side of the dial, striking corresponding lug on the inside of the cylinder, with the fabric being pulled down between them. This made an objectionable line on the face of the fabric. To prevent this, there were created other ways of holding the dial and cylinder; this, giving free passage to the fabric all the way round. This gave the name of dogless to this type of machine. These attachments have developed step by step, being simplified by getting rid of their vibrating parts, until now one is used with but one rotary part. This gives extreme simplicity and adds to the life of the machine.

For further speeding up the production, the machine has been equipped with an automatic speed changer, driving it at lower speed while knitting certain parts, then speeding up again. This addition has proved of great value. With the improvement in hosiery, came the need of making different effects known as the tuck stitch, selvage welt, French welt and drop stitch, and all of these effects have been taken care of by mechanical attachments operating automatically from

(Continued on Page 35)



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Spinners' Meeting Discusses Defective Yarn

THE meeting of the Spinners' Division of the Southern Textile Association, held at Union, S. C., last Wednesday, was devoted to a discussion of the causes of uneven yarn and other questions on spinning. The discussion proved very interesting and practical and the meeting was one of the most successful that the spinners have held.

Carl R. Harris, chairman of the division, presided. In opening the meeting Mr. Harris thanked Superintendent Jones, of the Union-Buffalo Mills, for having made the arrangements for the meeting.

Mr. Jones then asked T. M. McNeill, superintendent of the Monarch Mills, to make the address of welcome.

Mr. McNeill, in a few words, expressed the pleasure of having the meeting in Union and stressed the value of the work that the Southern Textile Association is doing through its divisional meetings.

Mr. Harris stated that the information based on the questionnaires sent by him to the members of the Spinners' Division was being condensed into chart form for the information of the members.

My idea, he said, today is to give you an opportunity of seeing that chart of information and taking what you like of it of any particular number that is based on what you are running, and later of course to get that out in the proceedings so that everybody will have an opportunity

of getting all the information there is to it, and I want to follow that up still more, and would like for any of you who have not done so to send in your questionnaire and would like to complete all of it we can, for it is very good stuff, and my idea today is we have, as you know for the last few meetings, got into the discussion of the different rings, spindles and machinery as a whole, but I thought today that we would just get together for a good old time discussion of you might say spinning room management, of everyday problems that come up in the spinning room, thin places in yarn, cleaning, overhauling, and that kind of thing. I think it would do us good to devote this meeting entirely to discussions of that kind, and I am sure all of you have questions along that line that you would like to have discussed and when we get started I would like for every man to get right into it and keep the thing going. I have not prepared a set form of procedure but I knew we could get to talking of spinning room problems and talk all day. Of course it is essential that we devote some time to rings, etc., especially that it would give anybody figuring on buying new equipment an opportunity to compare different equipment, but we have done a good deal of that, and I think we should go back and review things we come in contact with every day. I have a number of swatches of cloth here

that I would like to pass out and I want you to study these pieces of cloth and pick out any defect that you think could be laid to spinning, and later on we may check off a list of these things and discuss means and methods of overcoming them. There is some stuff in those pieces that I know some of the mills would like to get rid of, and if there is any way you can suggest to do it, it certainly would be appreciated. While we are waiting on that the first thing I would like to have as many causes for uneven yarn that is in the spinning room as we can get. How about just starting here and give us a list of the causes that you happen to think of and discuss those points after we get a list of them? Mr. Lockman, how about some of the causes?

John S. Lockman, Lockhart: To begin with, dry rolls will cause uneven yarn as will any kind of foreign lint going into the yarn behind the roller. Lint catching on the yarn will make uneven yarn. If the back saddle is not properly set in its place, or if the stirrup gets out of the saddle and rides out on the roller, it will make uneven yarn. In cleaning, if you get lint on the roving or yarn, uneven yarn will result. Anything that prevents the rolls running freely, such as saddles being worn, ends of rolls being worn, roll bars worn, lap being worn to such an extent as to let them down and not get the proper weight, or

anything else that would retard the rolls and kept them from turning freely causes uneven yarn. The same thing occurs when cotton gets between any of the steel rolls or the back one gets to the point where it will nip off the yarn. We can go into some of the finer points, such as uneven yarn being made by travelers that are worn sharp enough to cut or chafe the yarn or cause it to become hairy. With very fine yarn, we will hardly have that trouble, for when the traveler is worn sharp enough it comes off. The traveler will not cause unevenness except in very coarse yarn as mentioned above. Any lint that gets into the roving and catches on the rolls, or catches on the roving after it has gone through, makes uneven yarn, but there is very little of that. In such cases, you can almost take a blow pipe and blow the lint off, though I do not believe that you can get two hands on a side that will pick up the cotton.

Mr. Harris: Mr. Wikle, what do you think?

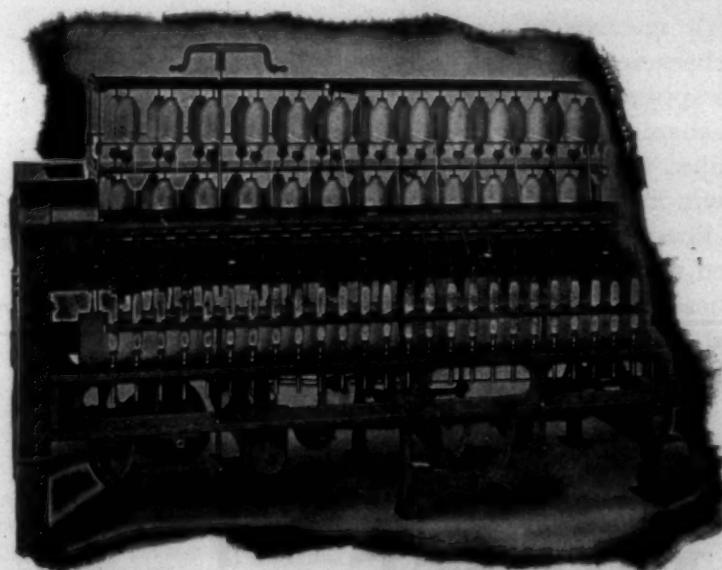
J. B. Wikle, manager Consolidated Textile Corporation, Shelby, N. C.: Some of the things that we have tried to do to prevent uneven yarn are as follows: Put laps on the card so that they will break down the end by the time the cap has gone through. Another thing that we have tried is keeping the roll

(Continued on Page 16)

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Illustrated Bulletin with List of Users sent on Request

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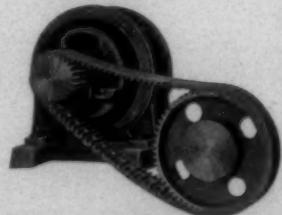
In Southern Mills—10 Years Ago



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**—LINK-BELT—
SILENT CHAIN DRIVES**

Development of New Principles in Ring Traveler Construction

IN appearance before a body of technically trained men, dealing with a complex subject, I feel somewhat embarrassed and realize my limitations to the fullest extent. My fundamental points, however, have been proven both in practice and in science, therefore, I feel sure of my ground in this respect. Otherwise, I am obliged to beg your indulgence and kindest consideration.

Ring spinning will have its one hundredth anniversary in 1928, because the traveler was invented in that year by John Thorpe, of Providence, R. I. With Thorpe's revolutionary invention began the passing of the throstle frame, and was to eventually supersede the mule in all but very fine numbers. It would be possible to dwell at length upon the ring frame as a whole, to describe the old masters who devoted most of their lives to perfect this now indispensable process of cotton manufacture, but as the purpose of this short paper is to treat especially with ring travelers, we will hstaste to the subject.

It is a recognized fact that the traveler is the instrument which measures spinning limitations, i. e., the endurance of the spindle, the ring and other essentials is far greater than the endurance of the traveler because they are much larger mass and do not perform under so great a strain. In addition to the responsibility of twisting and guiding the yarn on the bobbin, the

Address by Phillip C. Wentworth, treasurer National Ring Traveler Co., before Spinners' Division, Southern Textile Association.

traveler is forced to withstand the hostile attacks of two invading elements, viz., friction and centrifugal force. Friction, being a penetrating heat, inflicts its vengeance upon the steel structure of the traveler at the bearing point on the ring, while the centrifugal force is the agent which leads particles of lint, loosened by the friction slyly under the bow of the traveler to lodge in the vacuum and destroy the accuracy of weight, greatly multiplying air resistance and also effecting the weight of yarn in relative proportion. In addition to this, loading is one of the chief causes of thick and thin places. In view of these well known facts it is agreed that the only way to more intensify spinning is to increase the stability of the traveler and this can only be accomplished by a more scientific process of heat treating. Inasmuch as the traveler in regular style has a uniform amount of material from horn to horn, and must be in temper in order to be applied to the ring, it is drawn to a temper condition throughout. A way to change the heat treating condition has been brought about by removing some of the material at the bow; not an easy task to perform mechanically; however, it has finally been successfully accomplished by de-

signing and building new machinery at a material cost not only in money, but also in the expenditure of inventive effort and mechanical ingenuity.

When tempering a traveler in this new form the heat acts more quickly at the point of removal and the temper flows to the vital point, top of the bow, for the same reason that twist runs to a thin place in the yarn. The steel structure at the bearing point, or horn, is left materially harder than a spring temper condition. This hard steel structure at the horn results in greatly enhancing the stability and endurance of the traveler to meet its exacting and arduous duties. The life is not only multiplied by two, but the wear on the ring is reduced to a minimum by less frictional contact and its period of service must necessarily be prolonged.

It has long been recognized that the ring traveler in its regular shape in an instrument very much out of balance, in that an opening is left between the horns called the "flange," and the traveler itself is not a true circle. The result is a top heavy affair with the center of gravity well above the geometrical center. We believe that this is one of the reasons for the unevenness

of wear on the spinning ring, also, one of the chief causes of rings wearing "wavey." These defects of the traveler have received more recognition in England and Germany than in the United States, the home of ring spinning, and furthermore, the greatest ring spinners in the world. Attempts to overcome this unbalanced condition have been made by engineers in the above mentioned countries, by folding over the horns. These attempts to lower the center of gravity have not proved beneficial for the reason that it has required a greater length of material to make any given weight of travelers, and as traveler weights are constant, this has resulted in the use of a smaller gauge wire which has rendered the traveler weaker and less staple. Therefore, ideas of this character have never come into common use or progressed beyond the experimental stage. The removal of material at the bow of the traveler has not only completely revolutionized the heat treating condition but the center of gravity has unquestionably been lowered to a point nearer the geometrical center. This important point was not realized until the rotostat was brought into use for research purposes. The rotostat is a machine which can be placed in front of a spindle in operation, and its speed so synchronized that the spindle and the traveler have the appearance of

(Continued on Page 31)



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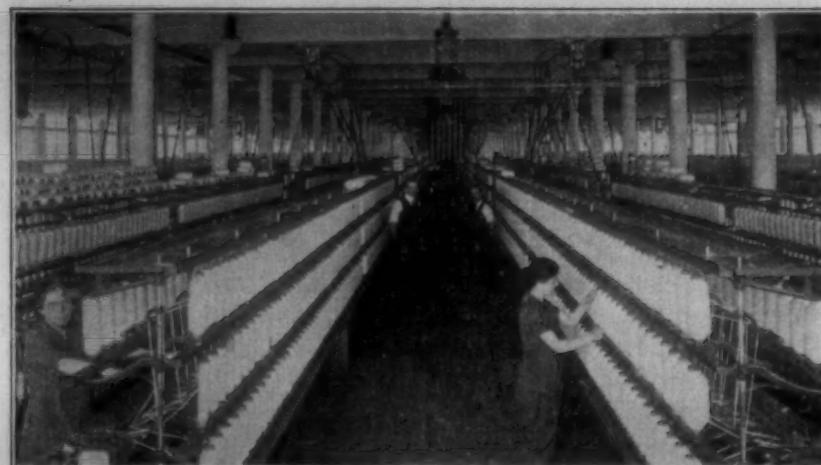
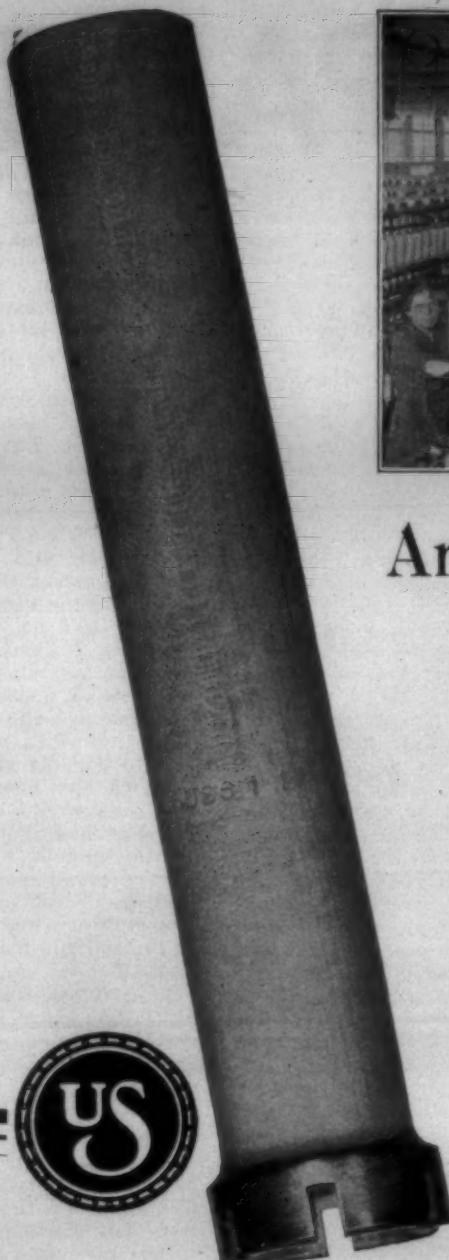
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Spinners' Meeting Discusses Defective Yarn

(Continued from Page 12)

necks in good shape. I have a scheme to keep up with roll necks. On each frame I number every neck and then look them all over. Where they are in good condition, I check them out. Where they are in poor condition I mark them with a B showing the neck needs attention. In that way, we have a record of every roll in the mill. I think a bad roller necks get you more poor yarn than anything else and where you piece up on stubbers, the way you balance the knock-off on the drawing makes it. If it knocks off so that the fibre breaks when you put up the neck, then you have a thin place in the yarn. If you have the knock-off balanced, you have the proper sized strand.



CARL R. HARRIS

Chairman Spinners' Division
Southern Textile Association

W. T. Morton, Newberry, S. C.: If you go into the things that would cause uneven yarn you would have to start back at the opening room, and to take up just the spinning, confines the matter to just a few things in the spinning room. Among the causes of uneven yarns are lumps of cotton around the skewers in the creels stretch the roving and cause uneven yarn. The stirrups rubbing against the steel rollers wear the rollers to where they become fluted on top. One of the primary things in the spinning room is the roller necks. Where the roller has the tendency to wobble as it goes over you will find uneven work. The travelers get worn and rub the yarn, causing it to look fuzzy. A lump of cotton going on the rolls or lumps catching between the saddle and several rollers would cause unevenness. These are just a few things I think about.

Smith Crowe, Drayton: Most of the things that can cause uneven yarn in the spinning room have already been mentioned, with perhaps one or two other things. Roller setting has not been mentioned. Especially where the metal rollers have been weighted on the spinning frame it can cause it either by too close or too wide setting. One other thing is uneven tension of bands on spinning frames. That does not make the yarn delivered at the front of the creel uneven, but it does cause slack twist in places—the bands may slip a little bit and wherever it slips that causes slack twist and that goes as a cause of

uneven yarn. Another thing that will cause uneven yarn on a spinning frame is a great deal of vibration in the spinning frame and if when the frame is stopped the floor vibrates very much, the roving will slack off just a little in the creel, and a great many times when the frame is started up it will run through double an inch or possibly two inches, and that will cause uneven yarn. That is about all I have in mind at this time in addition to what has already been mentioned.

Mr. Harris: Is there anything we have overlooked? Mr. Bagwell, can't you add something?

A. F. Bagwell, Glendale: These gen'lemen have about covered the ground, I think. I might add a few things. We might say the roving is uneven to start with. Improper twist—of course, the more uneven it is and the more twist you put in it the more uneven it will become. Variation in spindle speeds will cause it, and as Mr. Crowe mentioned the bands have something to do with it. Just a day or two ago we had an experience with a piece of goods that we were making. We wanted the piece of goods to break practically the same both ways. After putting a second filling frame on this number of yarn which averaged about 8s it broke about fifteen pounds stronger than the old frames which had been on for some time. Upon investigation we found that this frame had more twist in it, yet had a lower spindle speed than the higher speeded spindle frame. After speeding the spindle up to the second frame, it had a tendency to tighten the yarn and of course lessened the twist and the strength jumped up to about fifteen points. In other words, taking off a twelve-inch pulley and putting the smaller pulley increased the breaking strength about fifteen pounds and made the yarn look more even and uniform.

We have quite a difference in the benefit of twisting roving. We must have enough to keep it from stretching, although I think too much twist is as bad as not enough.

Mr. Waldrop, Drayton Mills: In setting the top roller and the steel roller, I find in changing that if I set the top roller direct over the steel roller the top roller will bounce from one flute to the other, and in doing so will cause thin places to appear in the yarn, and the roving is stretched, as Mr. Bagwell has said. I also find the creel rods under tension will jerk the roving and make uneven places, and will also cause it to kink. When the frame is started running on loose pulley and a tight pulley not balanced will cause these heavy places to come in.

Marshall Dilling: One thing has not been mentioned that may be of importance with some of the mills with older machinery is that when renecking the rolls in driving the square into the socket you are liable to swell it 1-64 of an inch, and that may cause that neck to be a little too large. That would not make thick and thin places, but would make that yarn finer than the adjoining end, and that would make the appearance in the cloth uneven.

If it is not put in true, the eccentric motion will not make a thin place, but will make another number of yarn, sometimes one-half and sometimes a whole number. New machinery is not so apt to have that as old machinery.

Chairman Harris: Mr. Wofford?

Mr. Wofford, Inman, S. C.: Breaking out roving in running two or three strands of roving sometimes six inches, sometimes four inches. The rest of it is about as Mr. Lockman says, but we make a lot of uneven yarn in the spinning room when we have good roving to start with.

A. L. Mills, Pelzer Mfg. Co.: I think the ground has been pretty well covered but there are two other things I wish to mention, one is draft and the other is cotton accumula'ing over the front roll and hanging down and catching on the yarn. Quite a lot of lumps showing in the yarn in that way, and I find it especially so in using the calf skin rollers.

H. M. Mitchell, Union, S. C.: We have overlooked one very important cause of uneven yarn on the spinning frame—that is where your front steel roller flutes becomes worn and slick and don't grip the roving as securely as a roller with deeper flutes or better rolls.

Chairman Harris: Mr. Jones, can you give us any information?

Mr. Jones, Union, S. C.: I do not know that I can give you any information on the cause of unevenness other than what has been mentioned, but we have recently had some experience in necking old spinning rolls, and call attention to the quality of steel that is used in making the necks. The average shop in renecking steel rollers or the man journeying around the country doing that work either use poor or cold rolled steel. We had about one hundred necks fixed with that and they lasted a very short time. It is better to use a steel with a higher percentage of carbon—we have used a great deal of it, and find it satisfactory, and any one renecking old spinning rolls should find out what steels should be used. The person who is renecking the rolls is going to put up a howl about using it, for it is slow, but I would say use because it will last longer.

Peter Quinn, Atlanta, Ga.: I advise case hardened joints—only trouble is it is pretty slow in working. You cannot take an old roll and make a new roll. The only solution is to put in a brand new roll with a case hardened joint and you have something that will last a lifetime.

W. T. Britton, Spartan Mill: I do not know that I can talk about uneven yarn—I have made more than anybody else. (Laughter.) I think the first experience I ever had about making uneven yarn was from a chattering roll. If you mix waste irregularly you are going to have uneven yarn, and if you have some mixed staple cotton you are going to have uneven yarn. The theory about cotton is that the short fibers slip back and when a bunch of that short fiber gets going it slips back. These mechanical defects, we all have them, and carelessness, but what made me think about the chattering roll was that I was West and had charge of carding and spinning, and had all kinds of trouble about uneven yarn. They had had two or three men there before me. After being there a week or two I asked "What did the last man leave here for?" "He said he didn't like the town." I said if this thing don't get better there is another fellow going." I could not fathom the trouble, and sent some to my father, and he wrote me back it was poor lubrication on the frames. I said, Well, the old man used to be a good carder, but he has forgotten the game. He told me to get some oil so I thought I would try that and we had a solid front roller and I put that on there and it wiped that trouble out, right away, and the fibre was a great deal more even than in this cloth I am holding. It was just the lubrication, and that held my job. That impressed me very much, and I think that poor lubrication and the mixtures of the stock and the kind of stock you put in your mill has as much to do as anything I know. One thing has not been mentioned that I had trouble with a good many years ago, and that was the use of poor roller felts, and when we had the vibration so that the kinks came through or with any hard twisting roving, the rolls would be spoiled, and if the felt just under the cot is not elastic enough to come back the roving would make a short indentation in the roll and as the traveler brings the roving in the high places in the roll you may get uneven yarn from that.

J. R. Wikle, Shelby, N. C.: Calumet Machinery Steel of Crucible Steel, Pittsburg, makes the best we can get for rollers.

Chairman Harris: Is there anything we have not covered in the cause of uneven yarn in the spinning room? Can anybody give us any more points? We have named a number of things here, and we have not discussed very much the means of overcoming these things. We have here for instance slack bands where we are unfortunate enough to run bands. What kind of system have we to overcome the problem of loose bands causing bad yarn?

J. R. Wikle: If we saw loose bands once a week when we went around to see about them we would cut them off and put them on again.

Mr. Lockman: I do not have any system except tie them on as they come off. That is about all I ever knew that was any account.

Chairman Harris: That is one thing we have to do. As Mr. Wikle says there is some system of inspecting and catching bands before they come off, and I think that is a good idea.

Mr. Lockman: I have tried that and a good many other things, and I have found that if you get a band that is the right weight and size, and made out of the right kind of stuff, you are not going to have any slack bands—when that band gives way it falls off.

Mr. Waldrop: We have no system of checking up on slack bands, but we do require the doffers when he finds a soft bobbin to flag that

Spinners' Meeting Discusses Defective Yarn

(Continued from Page 17)

er or under the front roller I can not decide.

Mr. Lockman: The way I see it is this: It has got to be a long and a short fibre toge' her, and it is impossible for it to get its twist before it goes through the front roller, and I believe tha' the long fibre from the middle and the front roller is holding it under the front roller, gets hold of it and it has its twist just after it comes through the front roller. It is impossible to twist it between the middle and front rollers, and this long fibre comes through just enough to twist' up and make that large place which draws it up. You can take the cockled yarn in your hand and it is that one fiber is longer than the other, and you can see what makes cockled yarn. This middle roller turns it loose in time to come on with the rest of the fibres after it has made that cockled yarn. It is bound to get its twist right in front of the front roller, where it is delivered. The middle roller still holds and the front roller gets hold of it, and it has got to do something and makes that little cockle, and if it were long enough it would make a bigger one. The longer the fibre the bigger the cockle will be.

Mr. Howe: I agree with Mr. Dilling: The middle roller not turning it loose sometimes will cause it. I think myself the cockle is formed

right in front instead of between the rollers.

Mr. Ellis, Anderson: That being the case, if the cockle comes in front of the steel roller would it not either break the end while it is being stopped or give a light place in the yarn by excessive twist.

J. S. Lockman, Lockhart: It may not be in the spinning. In my spinning on warp I go around at stopping time on Saturday, as I do not have a chance to observe it during the week, and up nex' to the steel rollers, with the frame stopped I find cockled places and when we start that frame off on Monday morning, we do not have cockled yarn. Sometimes I find fifty to one hundred ends in the same frame up next to the steel roller and we start it off and there are no cockles.

Chairman Harris: It will cockle when you bring a stop?

Member: It is caused from the traveler stopping and a little kink coming down.

Mr. Morton: I have had many things—chat'ering rolls almost ran me out of a job once. We had lots of trouble—the man from the shop could not stop it, and went all through the gears and could not stop it. I had a lot of cockled yarn, a lot that could not go through and tried to take out that lump, or put on a heavier traveler, it still continued. It is not between the middle roll and front roll because I could pull it out.

Mr. Harris: That is a good point. Will a heavy weighted frame make more or less cockles than a light

weighted frame? Anybody ever tried that or had a chance to observe?

Mr. Jones: I do not know if this has anything to do with that particular question—we have two plants, one operating on entirely double roving and the other on single roving, and in nine years on single roving we have had no cockled yarn. It is true the plant running on single roving has a heavier roving, which may have something to do with it.

Mr. Lockman: We have had that same experience at Lockhart.

Member: A fine number is more prone to cockle.

Mr. Harris: If you set your rolls as close on long as on short staple would that tell, Mr. Black?

W. A. Black, Spartanburg: I have had some experience on cockled yarn. I used to staple all the cotton that was bought at our place, when the plant was small, and have run on a bale of staple that was longer than we had been running, and I would let it slip by just to see what effect it would have, and then listen to our spinners. When it affected his work I would hear him. I have gone in and watched it make cockled yarn, and found that long staple had gone in. I contend that the cockle is made right at the front of the rolls and the cause is between the middle and the front rolls, in that the front roller bites the stock before the middle roller lets loose and something there must slip before the short fibre has been turned loose by the middle roll

while the longer one is intact, and the front roller making its usual revolutions the stock would slip. When this stock slips with that long fibre in there there is nothing for it to do but just kink up, and if when you pull out these cockled places, you catch it right close you can hear those long fibres snap, but if you should just come off a few inches you can feel that slip. That has been my experience with cockled yarn. The best way to keep cockled yarn out of the mill is to keep out uneven staple.

Stanley Black: This discussion has brought forth a theory. Your roving, if it is even, is delivered to the rolls in proportion, and if the front rollers take a certain amount of roving all the time the back roller is going to have a better grip on it than the back roller when it takes it, and is going to have a tendency to slide with roving, but then we all know the roving makes a thin place and when that thin place has a tendency to cockle more or less. However, a fellow figures that back the roller has a better grip and holds it best, and has a tendency to find out only that thin place goes by his attention and forms a corkscrew effect and that bunches the twist because of that slipping on that long fibre.

Mr. Eden, Clemson College: I am more or less responsible for some of the young spinners coming along. My explanation to my students is just the same principle as your wheels slipping in the mud. Your long fibre is held by both your front

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Thursday, March 31, 1927.

and middle roll, then your short fibres are caught by the front roller and thrown out on exactly the same principle as your rear wheels throw mud out and the twist running into long fibre and the short fibre having comparatively no place, and you find a place without any twist in it. That is how I explain the cockled yarn to my boys in the school.

Mr. Dilling: The past few years we have tried to get away from some of those things by the long draft spinning. That has been brought about by allowing middle roller unweighted and by other means to such pieces of leather or something that held it, but does not hold it so tightly but what the front roller does not pull out of it in contact but hold easy and surely. Some of these other long draft systems manufacturers think they have no cockled yarn. If they don't I think it is pretty good evidence that this trouble is caused by long cotton and held by two rollers and held so firmly that it has to slip somewhere. Some of the people have put in these light rolls that weigh $2\frac{1}{2}$ to 3 ounces for middle rollers, and that is so light it will not hold. I have a man running a mill on $1\frac{1}{2}$ -inch cotton who sets close and we can get them practically an inch from center to center setting, for they are as close as they can from center to center, and he does not have cockled yarn. It is caused by light rollers being so light they do not grip it so firm but that the other roller does not pull it down.

Mr. Jones: Is there anybody in the house running single roving having trouble with cockled yarn? No one. How many in the house running single roving? Quite a few.

Mr. Ellis, Pelzer: We have some Casablanca spinning on the warp and some on the filling. I would not say we have cockled yarn like we have on the other system, but we do have a lumpier yarn, which is caused by too much twist and too much humidity. I believe the trouble is always worse near the humidifiers. You are certain to have lumpy yarn and it has almost the same effect as cockled yarn. On the Casablanca system you cannot have cockled yarn.

Mr. Dilling: I just wanted the opinion of somebody as to whether they had cockled yarn.

Mr. Bagwell: If the long staple is wholly responsible for the cockled yarn, I would like to know why it is you can be running along in pretty clear weather and the atmosphere changes and you have cockled yarn? Also why the staple gets longer in wet weather than in dry? I open my rollers like everybody else does. I have had a good deal of experience in running 50s, both regular and crepe twist, and I find in changing either regular or crepe twist, everything the same except the twist I find that I can close my rollers up on the crepe twist and not get any cockles, but I find if I try the regular with this I have cockled yarn. Also run a lighter traveler but the yarn weighs the same, but it does not cockle. I have to open the rolls when I change the twist.

Mr. McNeill: I think Mr. Ellis' explanation of this lumpy yarn partially answers Mr. Bagwell's question. We have more cockled yarn in damp weather than at any other time. Long cotton that possibly would not cockle today, being dry, may give you trouble tomorrow. My observation has been that we will have more cockled yarn during damp days due to excessive humidity. Fibre is really longer in damp weather than in dry weather because it tends to stand straight.

Member: The belt slipping in the morning makes cockled yarn. I noticed a whole frame was cockled and the belt half off the pulley. The belt slips more in the morning than in the evening.

Mr. Morton: When it is dry the fibre will curl. You can take it and moisten it yourself and it will lay out straight. It shows longer in damp weather.

Member: It will not draw as well when it is dry. The spinning will not draw the roving as well. If you have uneven roving from your rolls the twist will run to the smallest place in the roving, and it is harder to draw at that place.

Member: Cotton shows longer in moist conditions. The cotton is exposed in a room with humidity in it to a certain degree for so many hours before the board passes on that cotton. It does not make the cotton any longer, you just get the true staple.

Chairman Harris: I do not mean to say you make the fibre any longer but it does stand straighter.

J. S. Lockman: I do not see how a slow running frame will make cockled yarn. I would like to know how it is. If this is true then the long fibre has nothing to do with it. You can just slack off a belt and make cockled yarn, back behind the roller has nothing to do with it.

W. S. Moore: The cockled yarn proposition is a pretty big thing. I went into it from several angles. I handled it by speeding up my middle roller on spinning frames and I agree with them in regard to the cockle at the front roll, but still the middle roll and the front roll both have a hold on the fibre at the same time, but the best thing I have found to do with cockled yarn is to fight it in the opening room.

Member: Will a slow frame make cockled yarn?

Chairman Harris: I don't think so. The belt will slip and catch, a slow frame will not do it.

Mr. Clark: I think it would be interesting to those discussing staple of cotton to have the figures made by O. G. Murphy, of Shawmut, Ala., who took as his test for the Arkwrights the different lengths of staple in same. The cotton that came from Tennessee as inch cotton was 21 per cent above an inch, 31 per cent inch cotton, or 52 per cent and above. The Oklahoma cotton is 17 per cent above inch, 30 per cent inch, or 47 per cent inch and above. Missouri cotton was 54 per cent inch and above. Texas cotton 22 per cent above inch, 33 per cent inch, or 55 per cent inch and above. Arkansas cotton 23 per cent above, 39 per cent inch, or 62 per cent inch and above. Alabama cotton 15 per cent inch, none above inch. One bale partic-

ularly showed 4 per cent less than $\frac{1}{4}$ inch and much of it below three-fourths. This test shows that some cotton bought as inch cotton was 15 per cent inch cotton, some 62 per cent inch.

According to this test there is a great variation of staple in your cotton when you buy inch cotton and pay for it on that basis.

In the Alabama cotton there is only 15 per cent inch cotton in the average of three bales and yet they were paying the price of inch cotton.

Chairman Harris: Would it not be some information to give them what they consider good standard?

Member: The standard Mr. Murphy mentioned in this I do not understand. It says that no bale should contain less than 18 per cent of its staple under the heading above one inch.

Not less than 27 per cent should be one inch, not more than

10 per cent, three-fourths, and not

more than 5 per cent below three-fourths.

These figures he gives here some of the bales show up to as high as 10 per cent of less than three-fourths.

This is just submitted to the Arkwrights and I think it

has some of the most valuable information ever obtained for the Southern Textile Association, and I suggest that you look into that very carefully.

This Alabama cotton that

does not show anything above one inch, and only shows 15 per cent

one inch will not make any cockled

yarn.

Member: Cotton is something that is grown and not manufactured.

We are going to be able to place in our contracts of the cotton buyers that the staple shall contain 30 per cent better than inch or that it

shall not contain only a certain percentage of $\frac{1}{4}$ or $\frac{1}{2}$ or whatever it

might be. We have got to test them out and find out what we are doing when we get to buying cotton.

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Personal News

H. C. Patrick has accepted the position of overseer of spinning at the Rankin Mills, Gastonia, N. C.

J. W. Cox has resigned his position in the weaving department at the Anchor Mills, Rome, Ga.

Marvin Carter, of Opelika, Ala., has become overseer of spinning at the Borden Mills, Kingsport, Tenn.

J. W. Derrick, of Greenwood, S. C., has accepted the position of overseer of weaving at the Edna Mills, Reidsville, N. C.

C. C. Griffith has been promoted from second hand in weaving to night overseer weaving at the Ivey Mills, Hickory, N. C.

J. H. Mode, who has been with the Chadwick-Hoskins Mills, Charlotte, has become second hand in weaving at the Ivey Mills, Hickory, N. C.

Newton G. Hardie has been promoted from production manager to superintendent of the Oconee Mills, Westminster, S. C.

P. L. Wagner has resigned as superintendent of the Springstein Mills, Chester, S. C., a position which he has held for the past eight years.

J. E. McCarvey has resigned his position with the Georgia-Kincaid Mills, Griffin, Ga., to become overseer of weaving at the Cochran Mills, Cochran, Ga.

Henry Colvert has resigned as overseer of spinning at the Clifton Mills No. 3, Clifton, S. C., and accepted a similar position at the Spartan Mills, Spartanburg, S. C.

C. W. Petit has resigned as overseer of spinning at the Borden Mills, Kingsport, Tenn., and returned to his former position as overseer of spinning at the Monaghan plant of the Victor-Monaghan Company, at Greenville, S. C.

M. H. Carter has resigned as overseer of spinning at the Pepperell Manufacturing Company, Opelika, Ala., to become overseer of spinning, spooling, warping and slashing at the Borden Mills, Kingsport, Tenn.

Raymond P. Earnhardt, who has been secretary of the Wabenah Mills, Lexington, N. C., has been made general manager of the mill and will sever his connection with the Bank of Lexington to devote his entire time to the mill.

M. R. Gardner has been transferred from assistant superintendent of the Payne Mills, of the Bibb Manufacturing Company, Macon, Ga., to a similar position at the Crown Mill No. 2, of the same company, at Macon.

E. P. Cofield, general manager of the Ladlassie Mills, Anderson, S. C., has also been elected general manager of the Gossett Dyeing and Finishing Company, which has just been organized to build a dyeing and finishing plant at Anderson.

J. L. Dorn has resigned as superintendent of the Oconee Mills, Westminster, S. C.

B. E. Geer, president of the Judson Mills, Greenville, S. C., will also be president of the new Thies Dyeing and Processing Company, of Belmont, N. C.

A. C. Lineberger, Jr., secretary and treasurer of the Art Cloth Mills, Lowell, N. C., has also been elected vice-president and general manager of the new Thies Dyeing and Processing Company, Belmont, N. C.

C. M. Geer, vice-president and manager of the Art Cloth Mills, Lowell, N. C., has also been elected secretary and treasurer of the newly organized Thies Dyeing and Processing Company, Belmont, N. C.

W. Beswick, manager of the Shelbyville Mills, Shelbyville, Tenn., will also be manager of the Ocoee Spinning Company, which has just been organized in Chattanooga, to operate the mill at Prendergast, Tenn.

S. H. Lander, president of the Ladlassie Mills, Anderson, S. C., will also be president of the Gossett Dyeing and Processing Company, which was organized in Anderson last week.

H. L. Lanier With National Ring Traveler Co.

Hyland L. Lanier, of West Point, Ga., has been appointed sales representative of the National Ring Traveler Company in Georgia and Alabama. Mr. Lanier is an experienced spinner, having been associated with the Shawmut Mills, Shawmut, Ala., for a long period of time. He is expected to make a very valuable addition to the Southern organization of the National Ring Traveler Company.

Chas. Peasley Resigns Position.

Chas. Peasley, who has been representing the National Ring Traveler Company for a number of years, with headquarters at Charlotte, has resigned his position. He is one of the best known salesmen in the Southern territory and was three times winner of annual prizes offered by the company to the salesman developing the greatest amount of new business during the year.

He has been covering all of the Southern territory with the exception of Texas.

S. T. A. to Meet in Asheville.

The annual meeting of the Southern Textile Association will be held at Kenilworth Inn, Asheville, N. C., one June 17 and 18.

The program for the meeting will be announced within a short time. Asheville, in past years, has proved a popular meeting place for the association and an unusually large attendance is expected.

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Amalie SONOLENE

(L. SONNEBORN SONS, INC., NEW YORK, N. Y.)

MILL NEWS ITEMS OF INTEREST

Hickory, N. C.—The Ivey Mills, which is now making cotton pongees, is preparing to install combing equipment, part of which has already arrived. The mill has been operated on sateens and twills. It has 15,360 spindles and 400 looms

Shelby, N. C.—The Shelby Cotton Mills, R. T. LeGrand, treasurer and manager, have just placed a contract with the Draper Corporation for 168 late model looms to replace an equal number of old looms. They also placed a contract for 10 new mill cottages and have just finished the installation of five new Whitin cards and five new Woonsocket roving frames.

Prendergast, Tenn.—It is understood that the Southern Cotton Mills, formerly the Prendergast Cotton Mills, have been sold to the Oconee Spinning Company, which was organized at Chattanooga with C. B. Bagley, president. The mill is a 21,000-spindle yarn plant and will be operated under W. Beswick, general manager. Mr. Beswick is also manager of the Shelbyville Mills, Shelbyville, Tenn.

Kinston, N. C.—The affairs of the Kinston Cotton Mills have been placed in receivership following a hearing before Judge N. A. Sinclair. The action for receivership was brought by the Atlantic Bank and Trust Company. L. J. Mewborne has been appointed temporary receiver and will continue to operate the mill, of which he has been president for some time. Final hearing for appointment of a permanent receiver will be held here April 11. No statement as to the assets and liabilities of the company has been made public.

Anderson, S. C.—The Gossett Dyeing and Finishing Company, recently organized with a capital of \$200,000, plans immediate expenditure of \$150,000 for a combination bleaching, finishing and dyeing plant here. The new plant will mark the fifteenth of the Gossett chain of textile industries operating in North and South Carolina.

Contract for the new mill will be awarded next week, as plans and specifications have already been made. Cottages to house the operatives will also be constructed. It is planned to have the new plant completed and in full operation by August 1. The plant, for the most part, will handle fabrics which come from 14 other Gossett mills.

The Gossett Dyeing and Finishing Company is a new organization. James P. Gossett, president of the American Cotton Manufacturing Association, will be chairman of the board of directors, while Samuel H. Lander, president of the New Laddassie Mills, also a Gossett mill, will be president of the new corporation. Other officers are E. E. L. Martin, vice-president, and E. P. Cofield, general manager.

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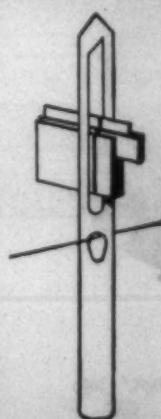
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Orangeburg, S. C.—The Orange Cotton Mills, which purchased a site outside the city limits some time ago to which the mill will be moved, will not begin the removal for a year or more. Tentative plans for the building are being prepared by Wm. W. Wannamaker, Jr., son of the president of the mill.

Albany, Ala.—Contract for the erection of the Albany Hosiery Mills, controlled by Cooper, Wells & Co., has been let to Batson Cook, of West Point, Ga. The plant will be one story, 100x140 feet, to cost \$40,000, exclusive of machinery.

The mill will make full fashioned hosiery and the machinery is now being built in Germany.

Greensboro, N. C.—Machinery for the Reading Hosiery Mill, which is being moved here from Reading, Pa., has begun to arrive and is now being installed in the Standard building on North Main street. It has not been decided how much equipment will be moved now. S. S. Miller, head of the company, is said to operate 1,000 knitting machines and may decide to gradually place them all here.

Charlotte, N. C.—Contract for the erection of the plant of the Pinoca Mills, Inc., was let to T. C. Thompson & Bros., of Charlotte. Work is expected to begin at once and the building should be ready in June.

The contract price was not divulged, but it is understood the first unit will cost between \$150,000 and \$250,000. The building will be a two-story brick building, of modern mill construction. The building will be 84 feet wide and 240 feet long. The mill will have 100 looms for making rayon draperies.

The building will stand in the midst of a tract of 109 acres of land which the promoters of the enterprise bought some months ago, and between the tracks of the Piedmont & Northern Railway and of the Seaboard Air Line Railway, both of whose tracks touch Pinoca.

The plans of the promoters are to construct other mills as occasion justifies and the outline of the plan has six possible units marked out at designated spots on the acreage, in contemplation of eventual investment of up to \$500,000.

The contract was awarded at the Hotel Charlotte by Dwight Seabury, head of the Dwight Seabury Company, architects of Pawtucket, R. I., and F. H. Schloss, president of Pinoca Mills, Inc., and president also of the Darlington Textile Company of Pawtucket, R. I.

Connelly Springs, N. C.—Fire originating from an unknown source completely destroyed the Blue Ridge Cotton Mill and entailed a total loss of approximately \$150,000. There is no fire fighting equipment at Connelly Springs. The Blue Ridge Cotton Mill was owned and operated by a stock company of which J. W.

Thursday, March 31, 1927.

Spinners' Meeting Discusses Defective Yarn

(Continued from Page 20)

give more attention to the selection of seed.

Chairman Harris: We have asked Philip Wentworth, of the National Ring Traveler Company, of Providence, R. I., to come down today, and he has some information. We made it plain to Mr. Wentworth that this was not to be a discussion from the standpoint of any particular traveler but Mr. Wentworth has some very valuable information on travelers, and we are delighted to have him here. As he has to leave right after lunch we will ask him to speak at this time.

Mr. Wentworth's address appears on Page 14.

Chairman Harris: We appreciate the remarks of Mr. Wentworth, and if there are any others who have

any remarks to make we would be glad to hear from you at this time.

Professor Eden, Clemson College: At Clemson we have developed a testing laboratory which we have been trying to introduce to you gentlemen for two years now at the textile shows. We also want to be of some benefit to you if we can. In our laboratory we are very glad to make tests of breaking strength or average yarn numbers for you, in this way testing your size work or checking your own work on your own machines or checking the instruments themselves. If you are having trouble with your sizings we would be very glad to check these sizings for you if you are having trouble with them, or if your breaks are not coming to where you think they should be coming we would be very glad to make these tests for you. We would be very glad to make them according to the specifications, according to the com-

mittee D-13. I just wanted to call your attention to the fact that we have this service department up there, and would be glad to do any reasonable amount of work for you. Some of you may want to check your own machines. You may want to make some breaks and send some of the same to us to be checked and we would be very glad to do this for you at no expense to you, if your demands are reasonable. Clemson College has this testing laboratory and we would be very glad to cooperate with any of you who would like to have this done.

Chairman Harris: We appreciate that, Mr. Eden, and I am sure a good many of the men will be glad to take advantage of that.

Mr. Eden: Last year we checked work for about fifteen mills, and I am quite sure that if any of the men here had that work done at our laboratory that they will tell you they were quite satisfied with

the results that we gave. It is not a commercial business, and sometimes we might be slow in getting our reports back to you, but since it is free we would not expect to rush it.

The meeting then adjourned for lunch.

(Note—The stenographer reporting the meeting was unable to attend the afternoon session. The report of the afternoon session is based on notes by David Clark.)

Afternoon Session.

At the opening of the afternoon session, Chairman Carl R. Harris asked for suggestions relative to subjects to be discussed.

George Ray stated that he was having hand troubles and would like to have a formula for bands that would break after being driven and would not stay on the spindles and make slack yarn. He stated that

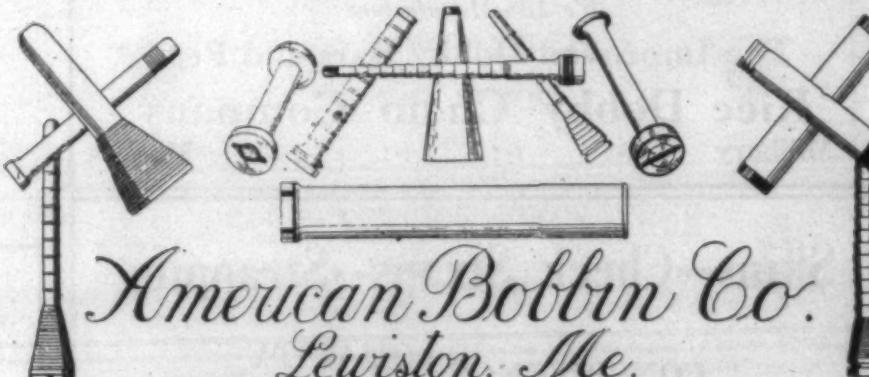
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he was making 25s and 30s warp and 35s to 40s filling.

J. S. Lockman said that he used a seven strand band with 98 to 100 bands per pound; that they were made from 3.12 hank roving. He said that he liked a seven strand band but that one of five or six strands would not last as well; that he put the hardest twist in the first twist of the band.

Peter Quinn said that the standard weight was 120 bands per pound with three hank roving, seven strands.

John S. Lockman said that for 30s and 40s, 120 bands to the pound was all right.

Peter Quinn said that 120 bands per pound was also all right on coarse numbers.

George Ray wanted to know how to get the twist into the back of the loop.

Peter Quinn said that if the machine was set properly that it would throw the twist into the loop.

W. T. Morton said that unless the hook on the band machine was perfectly round the twist would not go into the loop and that some hooks became worn.

L. E. Wofford asked George Ray if his bands were made out of one-inch cotton; he said that bands made from staple cotton did not wear well.

L. E. Wofford said that he used 100 bands to the pound.

C. W. Parrott said that he used 110 to 120 bands to the pound.

Peter Quinn said that with a tension device put on bands that 120 bands to the pound would last better than the 100 bands to the pound.

W. T. Morton said his bands were 100 to the pound.

R. F. Bagwell said that he used a five strand band of 2.5 hank roving, 100 to the pound and that the secret of getting the twist into the loop was in the band boy.

Chairman Harris wanted to know if any one could tell him the proper amount of spinning room waste, that is, waste from the clearers laps, sweeps and roving per 1,000 spindles on 30s with 15-16 cotton.

John S. Lockman said that he had the figures and would mail them to Mr. Harris.

Marshall Dilling read extracts from a test made by Gorge F. Brietz, of Selma, N. C., for admission to The Arkwrights, showing that with lighter carding the amount of spinning room waste was greatly reduced.

Chairman Harris explained to the meeting that any man who desired to be admitted to The Arkwrights could make application and be assigned his test and that if the test was satisfactorily completed the member would be admitted.

W. T. Morton wanted to know if it was practical to run anything smaller than A-1 circle traveler on a No. 2 flange ring.

Chairman Harris said "No."

John S. Lockman said he tried it but found it would not work.

W. G. Brittain said that he used the following rule of thumb: If the circle is large enough the traveler will run around free when the end of the yarn is pulled up by hand; if not large enough, it will pull or

bite the yarn when the end is pulled up.

Peter Quinn said that the size of the traveler that could be used depended a great deal upon the size of the yarn, that while an A-1 traveler might be used on a new ring, it might not work on an old ring that was worn.

A. L. Ellis said he was using an A-1 traveler on No. 2 flange ring.

Robert F. Eaton wanted to know if there was such a thing as a standard of circle and if travelers were gauged?

John S. Lockman said that there were traveler gauges but that none of the traveling salesmen would let a mill man keep one of them.

John S. Lockman wanted to know what was best to keep the balloon out of yarn except using heavy travelers.

Peter Quinn said that it was best to use the heaviest possible traveler and that the square point traveler would hold down the balloon best.

John S. Lockman did not like the heavy traveler and preferred to get the balloon out with a thread board or guide. He used on filling, an upright wire set one inch from back of rail.

Mr. Walter wanted to know if Lockman had had any singles as a result of light travelers.

John S. Lockman said "No."

A member asked if Lockman reduced the distance from the top of the quill. Member asked which kind of traveler wears out the quicker?

Peter Quinn said the round point; that the heavy traveler made the ring last longer and that the square point traveler made rings last longer.

John S. Lockman could not see how light traveler with less friction would wear out the ring faster.

J. H. Nichols said that he ran 36s and 45s and found he had to replace the rings on 45s earlier than on 36s. He ran 12-0 on 36s and 16-0 on 45s, both the same spindle speed. He also said he got better results from $\frac{1}{2}$ circle than 1-A on 2 flange ring and that this applied both to old and new rings.

George Ray used square point traveler on filling and round point on warp.

M. M. McNeil wanted to know what percentage of those present used square point and round point travelers.

A showing of hands showed that there were the same number of each.

W. T. Morton wanted to know how often travelers should be changed on 30s warp.

Answers by various members were: four weeks, three weeks, two weeks and according to conditions.

George Ray wanted to know what would result from changing from square point to round point travelers.

John S. Lockman said that round point, being sharper, makes only a very small ridge and that square point could not fill up the grooves and would run in the groove part of the time and out part of the time.

Mr. Walter wanted to know the difference between round point travelers and square point travelers after they were worn round.



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Thursday, March 31, 1927.

A member said they did not wear round.

W. T. Morton said he took charge of one mill and the superintendent complimented him on the improvement in the work and that when he told him that it resulted from changing the travelers, he remarked that the same thing happened the previous July when some new travelers were put on.

Chairman Harris called on William Dutemple, of Whitinsville Spinning Ring Company, for some information about a machine he had.

Mr. Dutemple said it was a Rotostat and that it would show a traveler as if in slow motion and the action of the traveler on the ring could be seen.

Marshall Dilling suggested taking up the matter of cleaning in spinning rooms, especially the picking of clearers, as he had an idea that some picked the clearers too often. Mr. Dilling said he only picked his clearers about every six hours on 60s and 80s yarn.

John S. Lockman did not think that slats should be picked until a heavy pad had accumulated. He picked slats twice per day on 36s and 40s and three times on coarser work. He wiped guides as often as necessary to keep clean.

Mr. Smith picked slats twice per day, and wiped back guides four times per day. He ran front guides every hour. He said he got better results picking slats twice per day instead of three times.

Stanley Converse picked rollers

once per day and once at night; he picked slats twice per day.

Stanley Black wanted to know who was using clean-up hands.

Mr. Lever was on 30s warp and 41s filling. He ran 18 sides and clean-up hands handled 40 frames; he said that he fanned out, and while most men present did not agree with him, he could not see any bad results from fanning.

George Ray was on 25s to 30s warp and 30s to 45s filling. His warp spinner ran 30 sides, while his filling spinner ran 24 sides. His clean-up hands handled 34 sides. He wanted to know the advantages of group or single doffing.

Mr. Lever said that he only allowed two frames doffed on a warp section at a time. The doffers brushed the side rockers. He had made a special brush to replace rail brooms and obtained splendid results. He cleaned his spindles once per week.

Member said that the trouble with group doffing was that many mills ran so many numbers that it took more doffers to keep up the way in which the frames ran out.

J. H. Nichols said he liked four doffers to the frame, but it required a head doffer to work each of them.

Mr. Smith said he used grown men and that they doffed from 7 to 24 frames, according to the number.

T. C. Drew had changed from group doffing to one doffer to the set.

J. S. Lockman said that four doffers would get better production but that one doffer to the set was more practical and that single doffing

eliminated many other troubles. He said that paying by the hank was the best system for doffing.

George H. Hughes, a new member from Kingsport, Tenn., said that he paid all doffers, spinners and section hands by the hank and liked that system.

A member said he had changed to paying doffers by the hank and found it much better.

In reply to a question, George H. Hughes said that he figured the doffing rate on full production and let the help get extra pay for extra production.

John S. Lockman wanted to know if any allowance was made for frames that broke down or stopped for any reason.

George H. Hughes said that he made an allowance for breakdowns or shifted the hand to another machine.

Stanley Converse wanted to know how many were using socket wrapped piecings and if it was preventing thin places.

J. Y. Jones said it eliminated thin places in warp. He did not have feelers.

A. L. Ellis used bunchers back on the weaving room to piece up.

John S. Lockman did not like socket wrapped piecings.

Member wanted to know how much yarn came back on bunches from the weave room.

Peter Quinn said about five yards to the bobbin.

The hour of 3:30 having been reached, Chairman Harris thanked

the members for making the meeting a success and it was adjourned.

Among Those Present.

Among those who attended the meeting were::
Addison, J. M., O-Spinning, Hartwell Mill No. 1, Hartwell, Ga.

Alexander, J. F., Carder and Spiner, Eastside Mfg. Co., Shelby, N. C.

Allen, L. D., Overseer, Alexander Mfg. Co., Forest City, N. C.

Bagwell, R. F., Supt., D. E. Converse Co., Columbia, S. C.

Bailey, T. M., Salesman, Detroit Graphite Co., Greenville, S. C.

Baker, J. S., Pelzer Mfg. Co., Pelzer, S. C.

Baker, H. W., Acme Loom Harness & Reed Co., Greenville, S. C.

Batchelor, Geo. H., Salesman, Armstrong Cork & Insulating Co., Greenville, S. C.

Cecknell, W. W., Supt., Arkwright Mills, Spartanburg, S. C.

Black, S. A., Night Supt., Lancaster Mills No. 3, Lancaster, S. C.

Black, W. A., Supt., Beaumont Mfg. Co., Spartanburg, S. C.

Blair, William G., Branch Mgr., Armstrong Cork & Insulating Co., Greenville, S. C.

Bobo, J. L., Overseer Weaving, Anderson Mills, Anderson, S. C.

Bobo, T. G., Second Hand, Anderson Mills, Anderson, S. C.

Bray, J. G., Overseer Carding, Woodside Mills, Greenville, S. C.

Britton, W. J., Supt., Spartan Mills, Spartanburg, S. C.

Burgess, J. M., Overseer Spinning, Union Buffalo, Union, S. C.

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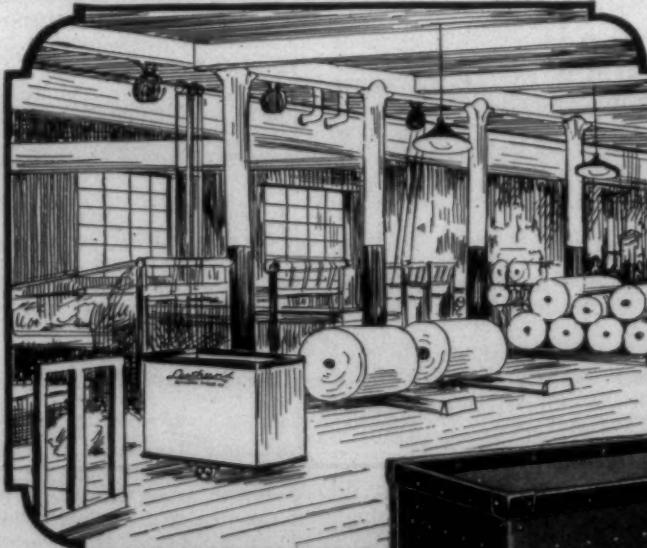
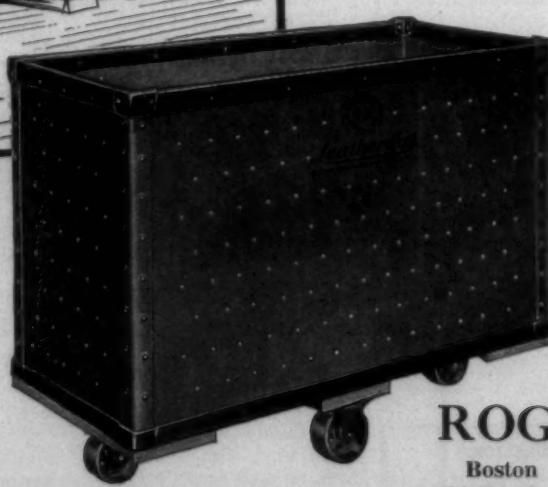
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Burnham, W. H., Salesman, Parks-Cramer Co., Charlotte, N. C.
 Callas, Claude, Overseer Spinning, Courtney Mfg. Co., Newry, S. C.
 Carpenter, D. O., Overseer Spinning, Thrift Mill, Paw Creek, N. C.
 Carter, A. B., Sou. Agt., Victor Ring Traveler Co., Gastonia, N. C.
 Carter, A. D., Salesman, Victor Ring Traveler Co., Gastonia, N. C.
 Carter, J. A., Overseer Spinning, Clifton Mill No. 1, Clifton, S. C.
 Clark, C. C., Salesman, Hart Products Corp., Spartanburg, S. C.
 Clark, David, Editor, Southern Textile Bulletin, Charlotte, N. C.
 Collins, G. R., Overseer Spinning, Chadwick-Hoskins Co., Pineville, N. C.
 Colvert, J. H., Overseer Spinning, Spartan Mills, Spartanburg, S. C.
 Compton, R. J., Overseer, Arkwright Mill, Spartanburg, S. C.
 Connelly, W. R., Overseer Carding and Spinning, Pacific Mills, Columbia, S. C.
 Converse, Stanley W., Asst. Supt., Clifton Mfg. Co., Converse, S. C.
 Cranford, J. B., Albemarle, N. C.
 Cranford, P. L., Overseer Spinning, Chadwick-Hoskins No. 2, Charlotte, N. C.
 Cranford, Z. F., Supt., Dilling Cotton Mills, Kings Mountain, N. C.
 Crow, Smith, Supt., Drayton Mills, Spartanburg, S. C.
 Culbertson, E. R., Sales Engineer, S. K. F. Industries, Inc., Charlotte, N. C.
 Dallas, D. C., Overseer, Camperdown Mills, Greenville, S. C.
 Davis, W. F., Supt., Brandon Mills, Greenville, S. C.
 Deason, W. T., Carder and Spinner, Union, S. C.
 Dilling, Marshall, Supt., A. M. Smyre Mfg. Co., Gastonia, N. C.
 Dorn, A. M., Salesman, Armstrong Cork & Insulating Co., Greenville, S. C.
 Drew, T. C., Jr., Night Supt., Converse Mill, Converse, S. C.
 Dutemple, Wm. P., Salesman, Whitinsville Spinning Ring Co., Spartanburg, S. C.
 Eaton, Robert E., Prof. Carding and Spinning, Clemson College, S. C.
 Ellis, A. L., Overseer Spinning, Pelzer Mfg. Co., Pelzer, S. C.
 Ellis, P. W., Asst. Supt., Anderson Cotton Mill, Anderson, S. C.
 Frye, G. V., Asst. Supt., Florence Mills, Forest City, N. C.
 Gant, W. S., Second Hand Spinning, Ella Mill, Shelby, N. C.
 Garrison, A. F., Supt., Hartwell Mill, Hartwell, Ga.
 Gibson, L. B., Supt., Union Buffalo Mill, Fairmont, S. C.
 Grant, L. L., Spinner, Cascade Mill, Mooresville, N. C.
 Gray, W. H., U. S. Dept. of Agriculture, Clemson College, S. C.
 Gregg, J. M., Sec. and Treas., Southern Textile Association, Charlotte, N. C.
 Greer, Jas. A., Sou. Mgr., American Wool and Cotton Reporter, Greenville, S. C.
 Gregory, W. L., Overseer Weaving, D. E. Converse Co., Columbia, S. C.
 Grey, George, Section Man, Cowpens Mfg. Co., Cowpens, S. C.
 Grimes, M. T., Anderson, S. C.
 Hardin, S. S., Weaver, Lancaster Mill No. 3, Lancaster, S. C.
 Harris, Carl R., Asst. Supt., Inman Mills, Inman, S. C.
 Haskins, L. L., Sou. Rep., Akron Belting Co., Greenville, S. C.
 Hill, H. F., Spinner, Saxon Mill, Spartanburg, S. C.
 Howard, Percy H., Dist. Mgr., Fuller Brush Co., Charlotte, N. C.
 Howe, B. F., Overseer Spinning, Republic Mill Nos. 1 and 2, Great Falls, S. C.
 Huff, J. H., Supt., Camperdown Mills, Greenville, S. C.
 Hughes, Geo. H., Supt., Borden Mills, Inc., Kingsport, Tenn.
 Johnson, P. D., Salesman, National Gum and Mica Co., Atlanta, Ga.
 Johnson, W. C., Overseer Spinning, Dunean Mills, Greenville, S. C.
 Jones, Jno. D., Genl. Supt., Union Buffalo Mills Co., Buffalo, S. C.
 Jones, J. Y., Overseer Spinning, Newberry Cotton Mills, Newberry, S. C.
 Jordan, R. L., Overseer Carding, Thrift Div., Kendall Mills, Paw Creek, N. C.
 Kimbril, A. C., Salesman, Terrell Machine Co., Charlotte, N. C.
 Kirby, H. J., Overseer Carding, Easley Mill No. 1, Easley, S. C.
 Lee, R. L., Jr., Instructor, Clemson College, S. C.
 Lee, William, Selling Agent, Fales & Jenks Machine Co., Charlotte, N. C.
 Lewis, C. L., Asst. Supt., Shelby Cotton Mills, Shelby, N. C.
 Lockman, C. H., Supt., Henrietta Mill No. 2, Caroleen, N. C.
 Lockman, John S., Overseer Spinning, Monarch Mills, Lockhart, S. C.
 Lockman, F. D., Supt., Monarch Mill, Lockhart, S. C.
 Lucius, J. T., Piedmont Supply Co., Greenville, S. C.
 Lybrand, S. R., Asst. Supt., Union Buffalo Mills Co., Union, S. C.
 McGarity, P., Supt., Mills Mill, Greenville, S. C.
 McNeill, T. M., Supt., Monarch Mill, Union, S. C.
 Mattox, J. L., Overseer Spinning, Monarch Mills, Union, S. C.
 Metzger, E. W., Cost Clerk, Union Buffalo Mills Co., Union, S. C.
 Mills, W. H., Salesman, Seydel-Woolley Co., Atlanta, Ga.
 Mitchell, Warren, Salesman, J. E. Rhoads & Sons, Greenville, S. C.
 Montgomery, W. S., Jr. Asst. Treas., Spartan Mills, Spartanburg, S. C.
 Moore, G. B., Arcadia Mills, Arcadia, S. C.
 Moore, W. S., Supt., Henrietta Mills, Henrietta, N. C.
 Morton, W. T., Overseer Spinning, Mollohon Mills, Newberry, S. C.
 Nichols, J. H., Overseer Spinning, Monarch Mills, Union, S. C.
 Osteen, R. T., Salesman, Southern Textile Specialty Co., Greenville, S. C.
 Owens, Jim, Easley Mill No. 1, Easley, S. C.
 Painter, T. S., Overseer Spinning, Cowpens Mfg. Co., Cowpens, S. C.
 Parrott, C. W., Carder and Spinner, Arcadia Mill, Spartanburg, S. C.
 Patterson, M. L., Overseer Carding and Spinning, Consolidated Textile Corp., Shelby, N. C.
 Perry, Hext M., Salesman, Detroit Graphite Co., Greenville, S. C.

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Where a — appears opposite a name it indicates that the advertisement does not appear in this issue.

	Page		Page
A		K	
Acme Sales Co.		Kaumagraph Co.	
Akron Belting Co.	31	Keever Starch Co.	
Allis-Chalmers Mfg. Co.		Kenilworth Inn	33
Aluminum Co. of America	Insert		
American Bobbin Co.	26	L	
American Cellulose & Chemical Mfg. Co., Ltd.	5	Ladew, Edward R. Co.	
American Cotton Growers Exchange		Lane, W. T. & Bros.	43
American Kron Scale Co.		Langley, W. H. & Co.	36
American Moistening Co.	25	Lawrence, A. C. Leather Co.	
American Textile Banding Co.		Lavonia Mfg. Co.	27
Amory, Browne & Co.	36	Leslie, Evans & Co.	36
Arabol Mfg. Co.		Lesser-Goldman Cotton Co.	36
Arkansas Cotton Growers' Co-operative Assn.	30	Lestershire Spool & Mfg. Co.	
Arnold, Hoffman & Co.		Lindley Nurseries, Inc.	38
Ashworth Bros.	42	Link-Belt Co.	13
Asian, Inc.	25	Lowell Shuttle Co.	
Associated Business Papers, Inc.		M	
Atlanta Brush Co.		Marston, Jno. P. Co.	
Atlanta Harness & Reed Mfg. Co.	31	Mathieson Alkali Works	
Bahnson Co.	1	Mauney Steel Co.	
Bancroft, Jos. & Sons Co.		Merrow Machine Co.	27
Barber-Colman Co.	32	Mocassin Bushing Co.	31
Barber Mfg. Co.		Moreland Sizing Co.	37
Bell, Geo. C.	24	Morse Chain Co.	43
Bond, Chas. Co.		N	
Borne, Scrymser Co.		National Aniline & Chemical Co.	
Bosson & Lane	37	National Ring Traveler Co.	37
Boyd's City Dispatch	39	Neutrasol Products Corp.	
Bradley, A. J. Mfg. Co.	22	New Orleans Cotton Exchange	21
Briggs-Schaffner Co.	44	Newburger Cotton Co.	
Brown, David Co.	26	Newport Chemical Works, Inc.	6
Butterworth, H. W. & Sons Co.	3	N. Y. & N. J. Lubricant Co.	
Burkart-Schier Chemical Co.	19	O	
C		Oakite Products, Inc.	
Carrier Engineering Corp.		Page Fence & Wire Products Assn.	34
Catlin & Co.	37	Page-Madden Co.	35
Charlotte Leather Belting Co.	44	Parker, Walter L. Co.	
Charlotte Manufacturing Co.		Parks-Cramer Co.	
Chicago Belting Co.		Penick & Ford, Ltd.	
Child, E. E. Co.	33	Pennsylvania Hotel	39
Cocker Machine & Foundry Co.		Perkins, B. F. & Sons, Inc.	
Collins Bros. Machine Co.		Philadelphia Belting Co.	
Cook's, Adam, Sons		Polk, R. L. & Co.	
Cooper-Hewitt Electric Co.		R	
Corn Products Refining Co.	43	Reeves Bros., Inc.	36
Courtney, Dana S. Co.		Reissler & Hasslacher Chemical Co.	33
Crompton & Knowles Loom Works	4	R. I. Warp Stop Equipment Co.	24
Crump, F. M. & Co.	32	Rice Dobby Chain Co.	25
Curran & Barry	36	Rogers Fibre Co.	29
Curtis & Marble Machine Co.	26	Roy, B. S. & Son	
Cutler-Hammer Mfg. Co.		S	
D		Saco-Lowell Shops	9
Dary Ring Traveler Co.	32	Schachner Leather & Belting Co.	25
Deering, Milliken & Co., Inc.	36	Scott, Henry L. & Co.	26
Denison Mfg. Co.		Seaboard Ry.	
Diamond State Fibre Co.	35	Sellers, Wm. & Co.	
Dixie Mercerizing Co.	31	Seydel Chemical Co.	38
Dixon Lubricating Saddle Co.	32	Seydel-Woolley Co.	
Drake Corp.		Shambow Shuttle Co.	
Draper, E. S.	24	Siggers & Siggers	31
Draper Corp.		Slaughter, G. G.	44
Dronfield Bros.		Sonneborn, L. Sons	23
Dunning & Boschert Press Co., Inc.	25	Sonoco Products	
Duplan Silk Corp.		Southern Ry.	
DuPont de Nemours, E. I. & Co.	27	Southern Spindle & Flyer Co.	
E		Southern Textile Banding Mill	32
Eastwood, Benjamin Co.		Spaulding Fibre Co.	
Eaton, Paul B.	31	Spray Painting & Finishing Equipment Sales Co.	37
Eclipse Textile Devices, Inc.		Stafford Co.	
Economy Baler Co.	42	Staley, A. E. Mfg. Co.	14
Emmons Loom Harness Co.	28	Steel Heddle Mfg. Co.	17
Entwistle, T. C. Co.		Stein, Hall & Co.	
F		Stone, Chas. H.	27
Fabreka Belting Co.	25	Sydnor Pump & Well Co.	33
Fales & Jenks Machine Co.		T	
Farish Co.	24	Taylor Instrument Companies	33
Ferguson Gear Co.	25	Terrell Machine Co.	
Flexible Steel Lacing Co.		Textile Finishing Machinery Co.	
Ford, J. B. Co.	34	Textile Mill Supply Co.	31
Foster Machine Co.		Thomas Grate Bar Co.	
Fournier & Lemoine		Tice, J. T.	
Franklin Process Co.		Timken Roller Bearing Co.	
Franklin Process Co.		Tothurst Machine Works	
Fairbanks-Morse & Co.		Tripod Paint Co.	32
G		U	
Garland Mfg. Co.		United Chemical Products Co.	43
Gaston County Dyeing Machine Wks.		U. S. Bobbin & Shuttle Co.	15
General Electric Co.		U. S. Ring Traveler Co.	38
Georgia Webbing & Tape Co.		Universal Winding Co.	38
Glidden Co.	10	V	
Gratton & Knight Co.		Victor Ring Traveler Co.	
Greist Mfg. Co.	38	Ed'k. Victor & Achells	24
Hart Products Corp.		Vogel, Joseph A. Co.	
H		W	
H. & B. American Machine Co.	12	Washburn	
Hollingsworth, J. D.		Watts, Ridley & Co.	37
Howard Bros. Mfg. Co.	2	Wellington, Sears & Co.	36
Howard-Hickory Co.		Westinghouse Electric & Mfg. Co.	
Hunt, Rodney, Machine Co.	31	White, Fred H.	
Hyatt Roller Bearing Co.		Whitlin Machine Works	
International Salt Co., Inc.	35	Whitnsville Spinning Ring Co.	34
Jacobs, E. H. & Co.		Wickwire-Spencer Steel Corp.	

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SHIPPIERS

DOMESTIC

EXPORT

Thursday, March 31, 1927.

MILL ITEMS

Fayetteville, N. C.—Arthur Priest, of Paterson, N. J., who has leased the building of the Hawthorne Silk Mills, as noted, will move equipment here for the manufacture of silk fabrics for lining caskets. He expects to install 100 more looms later.

Greenville, S. C.—Plans for improving and increasing the equipment of the American Spinning Company, recently purchased by the Florence Mills, Forest City, N. C., will be discussed at a meeting of the stockholders here on April 5.

Gaffney, S. C.—The Gaffney Manufacturing Company, electrically operated textile plant, is now obtaining its power from the Lockhart Power Company instead of from the South Carolina Gas and Electric Company, as heretofore. A large sub-station for "stepping down" the electric power is now being erected at the Gaffney plant.

Ware Shoals, S. C.—Contract for building an addition to the bleaching and bagging department of the Ware Shoals Manufacturing Company plant at Ware Shoals was awarded the Fiske-Carter Company, of Greenville, through J. E. Surrine & Co., of this city, architects. The cost of the building was not made public.

The building will be four stories high at one point and only three at another. A total of 50,000 feet of floor space will be provided.

This project, it is understood, has no connection with the proposed \$1,000,000 addition for the mill.

Plans are being issued by the Surrine Company for a material addition to the Oneida Mills at Graham, N. C., and contract for the work will be let soon.

Lyman, S. C.—Dyeing of cotton piece goods is to be begun at the Pacific Mills as soon as preparations for this phase of textile goods finishing can be completed, it was announced.

The dyeing to be done will be on a rather small scale for the present.

Edward S. Tillinghast, son of Prof. and Mrs. J. A. Tillinghast, of Spartanburg, will become overseer of dyeing when the work is begun in the near future in the bleaching house at Lyman, this work coming under the general supervision of Mr. Dean, bleachery supervisor. Mr. Tillinghast will probably leave in the next few days for Lawrence, Mass., where he will study for two or three weeks at the print works division of Pacific Mills to learn the latest methods and practices in dye work. Mr. Tillinghast, who has been assisting chemist in the bleachery, will be succeeded by L. G. Trimmer, also a native of Spartanburg.

The dyeing work to be started at Lyman will consist for the present of simple styles of shirtings, percales and possibly some work for export, Mr. Little said. Machinery for the work is being shipped from the Pacific print works division at Lawrence, Mass.

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Development of New Principles in Ring Traveler Construction

(Continued from Page 14)

standing still. Now, it is possible to observe in minute detail exactly what is happening; clear understanding takes the place of conjecture. By the use of this machine it was discovered that the traveler in its new form was practically "floating" with the ring simply acting as a guide resulting in a minimum of friction. Perhaps it might be well to add at this point that the basic theory of the ring and traveler, was for the traveler to "float," and the ring to guide same with only a slight bearing and the pull on the yarn was to be entirely governed and controlled by the weight of the traveler itself, consequently, the insistence on accuracy of weights.

The gradual advance and intensification of spinning, the coming of finer sizes and smaller circles, has caused the traveler to "ride" the ring flange, thus upsetting the basic theory. The changes in traveler construction which have herewith been described are enlisting the deep interest of manufacturers and textile engineers. It is gratifying to note that many of the leading manufacturers of the South have thoroughly investigated the merits of these improvements and are now using travelers in the new form extensively. This interest has been manifested because of the fact that figuratively speaking, the ring traveler has been in the dusty closet of neglect for nearly sixty years. This statement is being made not unmindful of the manufacturing refinements which have been brought about in order to keep pace with the development of the art of ring spinning, but rather, to focus attention on the lack of research and the development of advanced ideas and new principles.

In carefully reading the stenographic reports of discussions at spinners' conventions, it has been noted that details such as weights, flanges and circles, have been concentrated upon with the consequent ignoring of much more important subjects. It cannot be too emphatically pointed out that such elements as are mentioned above are absolutely under manufacturing control, and in order to meet almost every conceivable condition there has been built up a range of styles and sizes in ring travelers to a number in excess of ten thousand. Therefore, it is respectfully suggested that the practical manufacturer and the spinner can spend some time profitably in giving attention to some of the fundamental aspects of travelers.

In the past ten or fifteen years there has been tremendous progress made in the science of metallurgy. Wonderful new irons and steels have been developed to meet modern and exacting conditions. A certain amount of investigation work has proven that some of this advance in metallurgical science can be applied to the manufacture of ring travelers. One result is a new base material which is so superior in its inherent qualities that it is practically devoid of soft and hard

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places when drawn into a great multiplicity of sizes of wire. The gratifying result of this is, that this new material, which is now called relevant metal, responds to the various manufacturing processes to a greater degree of accuracy, thereby giving a greater uniformity of weights. It also responds to the heat treating with a greater degree of uniformity, the results being that the travelers are stronger and tougher as well as smoother and better finished product. For years one of the chief difficulties of the traveler manufacturer has been to obtain a material devoid of soft and hard places; a metal with such imperfections when used resulted in a wide discrepancy in weights, heat treating defects, etc., therefore, it is strongly urged upon spinners as a whole, that they concentrate to a much greater degree upon ring traveler fundamentals rather than those details which are under perfect control. Bear in mind that progress is continually being made in metallurgy and that as wonderful things as are being accomplished in the heat treating of steel today, this science is only in its infancy.

A thorough investigation into the cause of the "loading" of a traveler has demonstrated that "loading" can be reduced and sometimes eliminated within the traveler itself. This is a feature of utmost importance because a "loaded" traveler is the main reason for a great many spinning troubles. While the change in heat treating and the resulting greater stability has discounted this important point, we still think that the anti-loading feature is one of vital importance and one that can be capitalized at a tremendous advantage. Realizing these facts, which are indisputable, it is not unreasonable to assume that the ring traveler of the future will be vastly superior to the one of the past. In this situation as in every other line of advanced endeavor, we must have the interest and earnest co-operation of the manufacturer and spinner in order to bring better things to pass.

Cotton Goods Sales Exceed Production

During the eight months from July to February, last, inclusive, sales of cotton goods reported by mills to the Association of Cotton Textile Merchants of New York were 21 per cent greater than production reported to that association in the same period. Total sales reported were 2,140,168,000 yards, as compared with total reported production of 1,763,074,000 yards.

Shipments amounting to 1,876,217,000 yards, also exceeded production.

These reports cover the manufacture and sale of more than 200 different classifications of standard cotton cloths, representing a large part of the total production of such goods in the United States.

The increase in sales since last July was also accompanied by a reduction of 37 per cent in stocks on hand. On July 1, stocks totalled 305,245,000 yards. On February 28, stocks amounted to 192,392,000 yards. Unfilled orders increased more

than 140 per cent in this period. July 1, unfilled orders amounted to 187,837,000 yards. At the end of February they were 451,788,000 yards.

Georgia Association Meets April 19th

Atlanta, Ga.—The twenty-seventh annual convention of the Cotton Manufacturers' Association of Georgia will be held at Georgia Tech on April 19, according to plans formulated at a meeting of the officers, directors and former presidents of the association recently in the Capital City Club. It is planned to arrange the program in connection with the activities of the textile department of Tech.

"It is the desire of the association and the executive of the school to bring out a better understanding between the mills and school, and in order that they may be of the greatest possible service to each other," said Thomas M. Forbis, secretary, in announcing the plans.

"The textile department of Tech can be of great assistance to the Georgia mills in matters of laboratory testing and research work, and the mills offer excellent opportunities to students graduating from the textile department. It is our plan to map out an intensive program whereby the school and the mills may co-operate more effectively," Mr. Forbis said.

Several Tech graduates who now are mill executives will be asked to take part in the program, as well as many other prominent men in the textile industry. Through the courtesy of H. S. Busby, director of the A. French Textile School at Tech, a special program will be put on by the students of that department. The visiting mill men will be given an opportunity to go through the textile school and make a thorough inspection of the equipment and facilities.

George S. Harris, president of the association; Dr. Brittain and Mr. Busby were instrumental in making the arrangements for the meeting.

Textile Chemists To Meet

The Southern Section, now referred to as the Piedmont Section by the Journal, of the American Association of Textile Chemists and Colorists will hold its spring meeting at the Poinsett Hotel, Greenville, S. C., on Saturday evening, April 16, 1927.

In announcing the meeting the arrangements committee says:

"Dr. Ira Remsen, one of the leaders in the development of chemistry in America, died recently; Prof. C. S. Doggett, of the Clemson Agricultural College, will review his accomplishments in this field.

"Apparently there is no more hosiery made out of one fiber only; H. Grady Miller, of the Elliott Knitting Mills, Hickory, N. C., should command the close attention of those present with his paper, 'One and Two-Color Effects on Multi-Fibered Hosiery.'

"There is a constant increase in the number of closed dyeing machines being used in the South; W.

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Double " " " "	80.00 "
Single " —Private Bath	60.00 "
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Double & Single " " "	126.00 "

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Prevents Cloth Being Damaged by Flying Oil When Loom is Cleaned.

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W. Puckett, of the Southern Franklin Process Company, of Greenville, S. C., who is admirably qualified to do so, will read a paper on 'Package Dyeing in Closed Machines.'

"Most of the cotton piece goods that are not dyed, and many of them that are, are bleached before being used; H. W. Ormand, of the Union Bleachery, of Greenville, S. C., one of the closest students of cotton goods finishing in this country, will present a paper on 'The Bleaching of Cotton Piece Goods.'

Importance of Cost Accounting

Isaac L. Langley, cost accountant at the Consolidated Textile Corporation, Lynchburg, Va., gave four lectures on cost accounting during Textile Week at the North Carolina State College last week. He spoke on "Items of Expense to Include in Costs," "Distribution of Expenses to Departments," "Calculation of Departmental Costs," "Calculation of Fabric Costs."

"A uniform system of cost accounting in cotton mills is, in my opinion, the greatest single need of the industry. A mill should know at all times what it is costing to produce each number of roving, yarn, and fabric. Thus the cost of producing new yarns and fabrics may be predetermined; and in prosperous times a loom layout arranged that will give the maximum profit,—in times of depression, the minimum loss," said Mr. Langley.

"A mill should be carefully studied before any system of cost accounting is installed. Once a suitable system is set up, it is inexpensive to operate, and serves both the operating and selling departments," he stated.

"I strongly advocate the calculation of costs on a normal full time basis, thereby obtaining figures which may be used as standards, against which actual costs may be compared each period. In the system that we are to study expenses and labor are distributed to the various departments of the mill on legitimate bases; that is, labor on a pay roll basis; power on a power consumed basis; supplies charged directly to department using them, etc. When this has been done, accurate departmental costs may be obtained, which are necessary in calculating fabric costs, and useful for checking the actual costs of the department from period to period.

"The Cotton-Textile Institute will, no doubt, give out information regarding what items of expenses to include in costs, etc. Let us give this organization our one hundred per cent co-operation. I am confident that it is destined to do a great work for the industry," Mr. Langley said.

Cotton Carnival.

Asheville, N. C.—Nineteen pretty girl students at David Millard High School, wearing all-cotton costumes, appeared as the headline attraction in the Cotton Carnival staged at the school auditorium in connection with the widespread movement to encourage the use of cotton goods to better the South's economic condition.

BLEACHERS!

"My bleach is better than yours".—

"How do you get that way?"—

"Well; my Solozone-white is fast:

I do not injure the fibre.
I cut out Seconds.

My goods don't yellow.
They are soft and elastic".—

"You win; but mine costs much less".—

"Wrong again. Couldn't sell much if it did."

I'll turn out three lots to your one,
My labor is about one-third,
So is my water and steam and
Cost of equipment.
I bet we'll split even on cost".—

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PAGE Chain Link FENCE

Obtaining Managerial Control By Disclosing Abnormal Factors of Cost

(Continued from Page 8)

spent than you ought not to have spent; where you spent the excess, and how much less product you made than you ought to have made? I think I know what you would want to know, because I believe you will want to control your cost with the idea of reducing your cost.

Present conditions in regard to costing, as they now exist in cotton mills, may be accounted for as follows:

In the first place, the average mill executive has become so accustomed to waiting until the end of a quarter, or even the end of a fiscal year for his auditor to give him a statement showing the results of the operations of the mill, and containing facts which in relation to the time in which they actually occurred, have long passed into history—that the average mill executive has over-estimated the value of these kinds of reports and the information to be derived from them.

In the second place, executives knowing as they do little about the technical features of cost accounting, have gained the impression that cost information of such a nature that will aid them in management must rise to the surface, so to speak, through some sort of a bookkeeping scheme of debits and credits, the size and volume of which is in direct ratio to the value of the information desired. They, therefore, do not expect anything of real value to come very quickly from the accounting department. They have neither the time or the patience to wait until books and accounts are balanced inventories taken, and statements prepared. They also see no practical value in these numerous methods and theories of determining the cost and allocating expenses to the cost of the various operations of the mill. They know full well from experience that when this accounting data is finally assembled as a whole, that it will be of little value as an aid in increasing production, and in lowering the cost if that cost is excessive. There is no doubt about the fact that from the standpoint of management, cost accounting in the past has been suffering from entirely too much accounting.

Instead, therefore, of showing you how it is possible by various and sundry bookkeeping methods to get the cost of making cotton goods, I am going to try to show you how it is possible weekly by mechanical methods to get out of the expenses at least so you can see them in each important operation of the mill those expenses which either did not assist in getting the production obtained or which exceeded the necessary weekly requirements in this respect. In other words, I am going to try to show you how it is possible to disclose abnormalities in both production and expenses in a cotton mill, and how it is possible to do so practically entirely by mechanical means and without the direct aid of double entry bookkeeping.

By taking out of the expenses, weekly, those expenses which are either abnormal or which did not assist either directly or indirectly in

getting the production, we arrive at the weekly expense necessary, or required, to get the actual production obtained. They would represent what is known as a normal, or standard, cost, and when divided by the actual production obtained, would give as a result a normal or standard cost per pound. These exceptional, abnormal or unusual cost items, whichever you prefer to call them, are then classified as to cause and made to stand out clearly by a practical arrangement which I will later show you on the lantern slides, so that the executive may make use of them from the standpoint of management in applying corrective measures. They are known as variations.

All variations will be found to fall under one of the two following classes:

First: Variations due to increases or decreases in actual expenditures as against the normal requirements in this respect, the latter being determined either by established policies or by past performances.

Second: Variations due to getting a subnormal production.

Under the first heading would be shown, for instance, among others, the following:

1. Variations due to increases in payroll rates.
2. Variations due to increases in the number of employees.
3. Variations due to increases in taxes, insurance, salaries and other overhead items.

Under the second heading would be shown, for instance, among others, the following:

1. Variations due to the payment of labor, overhead, etc., on that portion of the production anticipated, but not realized.

Thus, for illustration, suppose spinning is paid by the side, and in amount is equal to \$0.08 per spindle. If the production for a week of 55 hours falls below normal to an amount equal to the production of, say 500 spindles, there is a variation in labor due to loss in machine or labor efficiency; 500 x \$0.08 or \$40.00. Again, suppose 500 looms during a 55 hour week are getting a subnormal production and the amount of the deficiency in production is equal to the normal production of 30 looms. If the normal overhead rate is \$5.00 per loom per week, there is an overhead deficiency or variation of \$240.00, which in reality represents payments in insurance, taxes, etc., on idle machinery. And, let us suppose that 50 additional looms were put into operation at all during the week of 55 hours, the variation in cost of these few looms alone would be \$250.00 per week.

By a few forms, ranging in number from three to seven or eight, depending upon conditions, and by the use of one of the several varieties of calculating machines now on market, both the normal and the actual operation or department of a cotton mill, as well as the variations and the causes for the variations, can be quickly determined. They can be determined by much less expenditure of time and effort than is now being expended in the average mill office in keeping track of ordinary manufacturing expenses by the old pen and ink method, and which produces little or real value to the mill executive as a guide to

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proper control and supervision. A number of the mills in the South operating from 500 to 800 looms, are now disclosing the amount of these variations weekly. They are doing so without any additional office help in from 8 to twenty hours.

Mill executives may want to consider the amount of these variations as a part of the cost of the product made. But, as a matter of fact, they are no more a cost of making the product than a contribution to a local church would be a cost of making the product.

It is immaterial, however, whether or not these irregular or abnormal expenditures be added to the cost of the product in general, or whether or not they are charged directly to profit and loss or to surplus. If they can be better recovered through the medium of sales by adding them to the cost of the product, so much the better.

It is not so much a question of how these variations should be treated from an accounting standpoint as it is a question of whether or not their existence and the cause for their existence is known and defined. It is extremely doubtful that a mill executive would not know of the existence of a large contribution to a local church. His records are usually arranged so that such an expenditure will stand out quite clearly. But, to what extent does he know about these other contributions? These contributions due to abnormal expenditures. These contributions due to subnormal production. Are his records arranged in such a manner that these contribution can also be readily and accurately determined.

Knitting of True Rib Fabric

(Continued from Page 10)

the pattern mechanism which is now a permanent part of practically all ribbers.

The need of striped color effects brought out the stiper attachment, changing from one color to another by means of fingers operating at the yarn feeding point with combined shear and clamp to hold the idle yarn. This attachment, when used on a single feed round frame, required one bobbin to rotate where it could not be under the control of the stopping-off arrangement, therefore, needing the watchful eye of the operator lest a bobbin run out and machine fail, causing delay in starting up again.

When two colors were in use for a time, the usual result was to have more changes in color. However, success in this line had to wait for some time, but the point has been reached at last. Now, changes in color can be made up to five different colors. Each yarn has the advantage of the stop-off gear in case the change fails or bobbins runs out. Quite a departure from the established custom took place in the development of this device. The change is made by tying different colors together at the back of the machine entirely free from the knitting unit. All the bobbins rest on stationary rack, avoiding danger of tangling. The yarn passes through the stop-off gear, up over a compensating guide, then down to the knitting head, using the fixed method

of knitting ribbed fabric just as in the case of a plain single feed rubber with no obstruction to the view of the operator of any of the needles or of the knitting unit.

By separating the operation of yarn changing from the actual knitting unit, this being possible only through the use of the knot tying principle, there remains untold possibilities for application of this device, both circular and flat knitting machines.

The present day style trend, due to the great competition in merchandising, has brought out a never ending demand for colors and pattern changes. This demand has, in turn, made every builder of knitting machines concentrate on attachments, devices and entire new mechanisms for giving the fabric results desired. Among the machines which have been recently brought out is the Multi-Design True Rib machine which gives ninety colors vertically, for colors horizontally, practically without limitation to pattern. The Multi-design true rib machine has ninety stationary bobbins, each one of these threaded through a finger giving pattern control of as many needles. The product has all the elasticity of the plain machine with the additional color and pattern quality. Horizontal stripes are made by the striping attachment forming the background for the designs which can take the form of vertical stripes, diamonds, block, circle, etc., of such colors or as many colors as desired up to the limit.

The machine which has just been described has the general appearance of being complicated merely because so many colored bobbins strike the line of vision, but a close analysis shows the extreme simplicity of the mechanical movements of the machine. Operators with average common sense and mechanical sense familiar with the operation of the regular knitting machines have found no difficulty in mastering this machine. After the method of developing and producing a given pattern has been learned, no complications arise. The pattern itself is governed by an auxiliary chain on the side of the machine which works in harmony with the primary horizontal striping chain producing the horizontal color effects and governing the length of the article produced.

Macara Says Cotton Trade Needs Figures

London, Eng.—"The only thing that will put the cotton trade right is to obtain statistics of production, consumption, and stocks, and regulate supply to demand, instead of distributing throughout the world our capital and the revenue from our manufacturing and exporting industry, a condition brought about by sheer mismanagement," asserted Sir Charles Macara, in an interview recently.

According to Sir Charles Macara, there has been a great deal of talk about foreign competition, but if people would only read the authoritative statements on this subject published during the past 20 years they would see that there was nothing to fear.

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Cotton Goods

New York.—The cotton goods markets were quieter during the week, but prices held steady, due to the large orders received recently by the mills, the strong cotton market and the small stocks being carried by the mills. The movement of goods from the mills continued very heavy, the large orders placed during the past three months being reflected in high production and shipments.

Trade in print cloths and sheetings was not as large as during some recent weeks, but prices were strong. The demand for colored goods continued good and the volume of business done in recent months for both domestic and foreign trade is the largest in the past three years. Prices on denims, cottonades, low end goods and other colored goods were very firm.

There was an active trade in wash goods, the best demand being for printed fabrics, and cotton and rayon and cotton and silk mixtures. Business in towels was quiet, due to increased production on these goods in recent weeks.

Substantial sales of 8.20 print cloth yarn goods were made at 4% cents and 4% cents for long and regular cuts for deliveries carrying as far ahead as June. Buyers included shade manufacturers, converters and the surgical trades. Spots of 72x76s sold at 9% cent's, with some houses asking 4% cents higher. Some spots of 68x72s sold at 7% cents, with most sellers asking 8 cents. Spots of 60x48s sold at 6% cents and May deliveries at 6 cents. This month's deliveries of 64x60s brought 6% cents, with spots held at 7 cents. Narrow 64x60s sold at 4% cents. Sales of 27-inch 14.75 yard goods were made at 2% cents.

There has been comparatively little doing in sheetings during the week. Mill prices have not changed, although several sellers have intimated their interest in getting propositions. For 31-inch, 5.00 yard, 5% net is considered the market; 5.50 yard sold at 5% net; 6.15 yard, 44x40 count, sold in small lots, spot, at 5% net. Later contracts on the 7 squares count at one-eighth had been reported; 37-inch, 48 squares, 4.00 yard at 7% to one-quarter, depending upon the make; 56x60, 4.00 yard at 8 net for spot and nearby, and one-eighth less for contract; 40-inch, 3.60 yard sold at 9% net; second hands sold spots of 40-inch, 2.85 yard, this week, at 10% net.

A number of mills have considerable jacquard brassiere cloth business in hand and have been forced to refuse additional commitments this side of September. Some of

these cottons are rayon decorated and are being brought out in entirely new effects. In several quarters activity in this field has been described as far less than normal, converters finding they have failed to move the quantities they expected they would.

The situation in carded broadcloths has maintained most of its recent firmness, despite the fact that interest is not as broad as it was several weeks ago. Quick shipments of 100x60 in first hands are not readily found and are held at 11 cents. March sold in second hands at 11, and April at 10% cents. First hands continue to ask 10% on spots of 90x60, and 10% reported for second week in May.

On 128x68 all-combed contracts of choice makes starting almost at once, are reported at 16% cents. For 144x76 singles, commencing in May, 18% cents quoted on best makes; 19 to 19% for spots.

During the past few days a limited number of smaller orders were placed. Tire dealers are taking larger quantities of various sizes and qualities of tires and justifying mills in increasing their manufacturing schedules, though their inventories are on the increase also.

Having bought liberally for forward delivery the heavy goods manufacturers are comfortably supplied and the filling-in business coming forward is naturally small. The automobile fabric business is less buoyant, although tire fabrics are being made on order in substantial quantities.

Hand-to-mouth trading has been the rule in the Fall River print cloth market for the week, with spot and nearby deliveries prevailing. Neither buyers nor sellers have shown any particular interest in contracts, consequently the amount of future business taken has been very small. Prices have held firm and continue on about the same basis as last week. The week's sales are estimated at 85,000 pieces.

Cotton goods prices were as follows:

Print cloths, 28-in., 64x64s	5%
Print cloths, 28-in., 64x60s	5
Print cloths, 27-in., 64x60s	4%
Gray goods, 38½-in., 64x64s	7½
Gray goods, 39-in., 68x72s	8
Gray goods, 39-in., 80x80s	10%
Brown sheetings, 3-yard	10
Brown sheetings, 4-yard	
56x60s	8%
Brown sheetings, stand	11
Tickings, 8-oz.	18 a 19½
Denims	14½
Staple ginghams, 27-in.	9
Kid finished cambrics	8½ a 9
Dress ginghams	12½ a 16½
Standard prints	8

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The Yarn Market

Philadelphia, Pa.—The yarn market continued on a slow basis during the week. With few exceptions, business was limited to small fillings-in orders where carded yarns were concerned. Spinners made no change in their prices, quotations being firm with a tendency to go higher. Buyers continued to delay purchases. Many of them are said to believe that present production of yarns is so high that stocks will accumulate within a short time and prices will go lower. Spinners contend that prices are not showing any appreciable profit and that the difficulty of securing good cotton at prices in keeping with yarn prices is making the extremely difficult. The firm course of cotton has aided spinners in their price attitude and they are not expecting lower yarn prices.

Combed yarns were reported as fairly active during the week. Spinners on combed counts are well sold for the several weeks and are maintaining quoted prices.

The recent large business in cotton goods is expected to have a favorable effect on the yarn situation within a short time.

February sales, in pounds, was below that of January, but above that of February, 1926. Thus far March sales, in pounds, have exceeded those of the preceding month, but are below the total sales reported for January. The money volume of sales for the first quarter of this year, dealers say, falls very considerably under that of the like period last year.

The average price of four representatives of the market list here is generally lower than spinners' quotations:

Southern Two-ply Warps.

8s	25
10s	25 1/2
12s	26 1/2
16s	28
20s	29
24s	32
26s	33
30s	36
40s	45
40s ex.	49

Southern Two-ply Skeins.

8s	25
10s	25 1/2
12s	26
14s	27
16s	28
20s	29
24s	31 1/2
26s	33
30s	35
36s	42
40s	44 1/2
40s ex.	49
50s	56

Tinged Carpet 3 and 4-ply 20
White Carpet 3 and 4-ply 24
Southern Single Chain Warps.

10s	25
12s	26
14s	27
16s	28
20s	29
24s	31 1/2
26s	33
30s	35
36s	42
40s	46
40s ex.	49
50s	56

Southern Single Skeins.

6s	24 1/2
8s	25
10s	26
12s	27
14s	28
16s	29 1/2
20s	29
22s	31
24s	32
26s	33
30s	35 1/2

Southern Single Skeins.

6s	24 1/2
8s	25
10s	26
12s	27
14s	28
16s	29 1/2
20s	29
22s	31
24s	32
26s	33
30s	35 1/2

Southern Frame Cones.

8s	24 1/2
10s	25
12s	25
14s	26
16s	26 1/2
18s	27
20s	27 1/2
22s	28
24s	29
26s	30
28s	31
30s	31
30s*	31 1/2
40s	43

Southern Combed Peeler Skeins, Etc.—Two-ply.

16s	40
20s	41
30s	49
36s	50
40s	53
50s	59
60s	67
70s	79
80s	89

Southern Combed Peeler Cones.

10s	34 1/2
12s	35
14s	36
16s	37
18s	38
20s	39
22s	40 1/2
24s	42
26s	43
28s	44
30s	46
32s	46
34s	48
36s	49
38s	53
40s	54
50s	61
60s	66

Southern Spinners' Bulletin

The weekly bulletin of the Southern Yarn Spinners' Association says:

Conditions in the yarn market remain unchanged. The Government ginning report has apparently had no stimulating effect on yarn purchases. Spinners' prices are firm at an advance over dealers' quotations, and business is confined to hand-to-mouth buying.

The Association of Cotton Textile Merchants of New York has just published a report covering business for the eight months period, July, 1926, to February, 1927, inclusive, which shows a healthy condition in the piece goods trade. Sales for the period exceeded production by 21 per cent, with a 37 per cent reduction in stocks, while unfilled orders at the end of the period show an increase of 140 per cent over unfilled orders of July 1.

With this healthy condition in the piece good market, it is reasonable to expect that the yarn market should show a like condition once demand is stimulated.

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40 Draper Looms, 40" E Model, auxiliary shafts, equipped for 8" bobbins. Acworth Mills, Acworth, Ga.

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During the three months' membership we send the applicant notices of all vacancies in the position which he desires and carry small advertisements for two weeks.

We do not guarantee to place every man who joins our employment bureau, but we do give them the best service of any employment bureau connected with the Southern Textile Industry.

WANT position as overseer carding. Would prefer job where card room is in very bad condition. 28 years old, married and have family. A-1 references as to character and ability. No. 5120.

WANT position as overseer weaving. Experienced and can furnish the best of references. No. 5121.

WANT position as master mechanic. 25 years experience in cotton mill shops. Can handle steam, water and electric drives and welding. Can give good references. No. 5122.

WANT position as overseer of spinning, or second-hand in large mill. 15 years experience in mill and 8 years as second-hand and overseer. Can give good references. No. 5123.

WANT position as overseer carding and spinning, or of carding. Long experience. Good references. No. 5124.

WANT position as overseer of card room in small mill, or second-hand in large mill. Good references. No. 5125.

WANT position as overseer spinning. 7 years experience as overseer of spinning; good experience in carding. I. C. S. graduate. Can change on short notice. No. 5126.

WANT position as overseer carding and spinning, or carding or spinning. Experienced. Can furnish good references. No. 5127.

WANT position as superintendent of cotton, carding, spinning and weaving. Have both practical and technical knowledge of cotton manufacturing. Now in charge of carding and spinning, and wish to change only for a better position. Can furnish good references as to character and qualifications. No. 5128.

WANT position as chief engineer or master mechanic. Several years experience on both steam and electric power. Can handle machine shop in first class manner. Best of references. No. 5129.

WANT position as overseer spinning, or carding and spinning or superintendent of yarn mill. Experienced. Can furnish good references. No. 5130.

WANT position as overseer of weaving. No record, but ability to make one. Now employed as second hand. 32 years of age, married and have family. Reference as to character. No. 5131.

WANT position as overseer spinning, or large second hand job. Now running spinning at night but want day job. Can furnish good references. No. 5132.

WANT position as superintendent of yarn mill or plain weave mill. Would prefer a mill that is run down and needs bringing up. Good references. No. 5133.

WANT position as overseer carding, spinning, spooling, winding, warping and twisting. I. C. S. graduate. 13 years experience as overseer and assistant superintendent. 38 years of age. Best of references. No. 5134.

WANT position as overseer carding, or would accept carding and spinning at night. Overseer for 13 years. Experienced on combers and double carding. Can furnish good references. No. 5135.

WANT position as master mechanic. 12 years experience in steam, water and electric power, shop work, welding and ice making. Married. 35 years of age. Good references. No. 5136.

WANT position as superintendent, carder, or spinner, or overseer of carding and spinning. Best of references. No. 5137.

WANT position as superintendent of small or medium yarn mill, or as overseer carding and spinning in large mill. Ten years experience as overseer carding and spinning on all kinds of colored novelties and weaving yarn; also knitting yarns. Want place that pays at least \$36.00 per week. 31 years of age, married and have family. Can furnish good references as to my experience and ability. No. 5138.

WANT position as weave room overseer; either plain or fancy weave room. Several years experience on plain and fancy weaves, leno box weaves, and silk filled weaves. No. 5139.

WANT position as overseer of carding or spinning, or both carding and spinning. Now employed but wish to make a change. Can give the best of references. No. 5140.

WANT position as master mechanic. 12 years experience in cotton mill shops; 6 years in contract shop. Reasonable salary. No. 5141.

WANT position as superintendent. Could change on thirty days notice. Good references. No. 5142.

WANT position as roller coverer. 12 years experience. 27 years of age, single and strictly sober. Can take charge as foreman. A-1 references. No. 5143.

WANT position as overseer weaving, slashing, spooling and warping in some mill east of Mississippi River. Can run any job on Draper looms, 2-3-3-4-5-6 harness goods. Strictly sober. I. C. S. student and hustler for production and low seconds. Good references. No. 5144.

WANT position as superintendent of yarn mill. Have had long experience in carding and spinning and am confident can run a mill and make money. Have a good textile education and have made a successful overseer. Reliable and strictly sober. No. 5145.

WANT position as roller coverer and belt man. 22 years experience. 34 years of age, married, strictly sober and reliable. Can furnish good references and can change at once. No. 5146.

WANT position as superintendent of either yarn or weave mill. Would consider position as overseer of weaving in large mill. Good references. No. 5147.

WANT position as overseer of weaving, plain or fancy; overseer of spinning, medium numbers; or overseer of carding, medium numbers, white. Good references. No. 5148.

WANT position as overseer of weaving, or clothroom. 20 years practical experience. Graduate of I. C. S. 35 years of age and married. Now employed as overseer, but desire better position. Good references. No. 5149.

WANT position as overseer of weaving. 5 years experience and can furnish the best of references. No. 5150.

WANT position as superintendent. Experience not confined to any one or two departments, as is usually the case, but prior to promotion to superintendent's position, was successfully and successively overseer of carding, and of spinning and weaving. Good references. No. 5151.

WANT position as master mechanic. Can handle steam or electric plant. 42 years of age and have family. Good references. No. 5152.

WANT position as cotton grader. Can furnish good references. No. 5153.

WANT position as overseer of carding, day or night jobs, at \$30.00 or more per week. 34 years of age. 10 years experience in carding, and can guarantee quality and quantity. No. 5154.

PHILADELPHIA

Chestnut and 39th Street

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Fireproof—Unrestricted Parking—Garage



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600 ROOMS—500 BATHS

Rooms with running water from \$2.50 per day

Rooms with private bath and shower from \$3.50 per day

Food and Service the Best

Near West Philadelphia Station Pennsylvania Railroad
University of Pennsylvania—Franklin Field

The Foundation of Advertising Is The List

Over 50,000 national and local advertisers are using Boyd's Lists in building business by Direct Advertising.

Send for a copy of Boyd's 1927 leaflet of Dry Goods and kindred Lists, giving State figures on the following:

43,719 Dry Goods and Department Stores, U. S., price	\$100.00
23,864 Dry Goods worth over \$5,000	60.00
19,178 Dry Goods worth over 10,000	50.00
9,769 Dry Goods worth over 50,000	35.00
3,893 Dry Goods worth over 100,000	15.00
198 Dry Goods (Headquarters) with 3 or more Branches	5.00
2,971 Dry Goods located in Canada	25.00
1,668 Dry Goods Wholesale	10.00
747 Dry Goods, Exporters	6.00
54,154 Retail Clothiers and Men's Furnishers	150.00
30,844 Retail Clothiers worth over \$5,000	85.00
8,212 Sporting Goods Dealers	50.00
5,900 Sporting Goods worth over \$5,000	35.00
6,536 Department Stores	7.50
1,385 Army and Navy Stores	7.50
2,961 Five and Ten Cent and Similar Stores	7.50
2,772 Five and Ten Cent Buying Headquarters	4.00
5,193 Variety and Racket Stores not duplicating with Five and Ten	20.00
7,925 Retail Women's Furnishings not duplicating with Department Stores	35.00

Our Catalogue No. 56 contains 8,000 Lists. Ask for a copy. Names of any kind—any place—any quantity.

Boyd's City Dispatch

Established 1830

Edgar J. Williams, Manager

Office: 114-120 East 23rd Street, New York City
Receiving and Shipping Departments: 115-119 East 22nd St.

Direct Mail Service of Addressing, Mailing, Letters, to above Lists.

CLASSIFIED LIST OF ADVERTISERS

Air Conditioners—
American Moistening Co.
The Bahnsen Co.
Carrier Engineering Co.
Parks-Cramer Co.
R. I. Humidifier and Ventilating Co.
Albome—
The Roessler & Hasslacher Chemical Co.
Architects and Mill Engineers—
Srirne & Co., J. E.
Ash Handling Equipment—
Link-Belt Co.
Automatic Feeds for Cotton—
Saco-Lowell Shops
Whitlin Machine Works.
Automatic Spoolers—
Barber-Colman Co.
T. C. Entwistle Co.
Automatic Stop Motion—
Eclipse Textile Devices Co., Inc.
Automatic Yarn Cleaner—
Eclipse Textile Devices, Inc.
Ball Bearing—
Charles Bond Company
Balers—
Dunning & Boschart Press Co., Inc.
Economy Baler Co.
Baling Presses—
Dunning & Boschart Press Co., Inc.
Economy Baler Co.
Bands and Tape—
American Textile Banding Co.
Baskets—
Charles Bond Company
W. T. Lane & Bros.
Wickwire Spencer Steel Co.
Beaming and Warping Machinery—
Barber-Colman Co.
Cocker Machinery & Foundry Co.
Draper Corporation.
Easton & Burnham Machine Co.
T. C. Entwistle Co.
Saco-Lowell Shops
Beam Heads—
T. C. Entwistle Co.
Saco-Lowell Shops
Beams (Section)—
Washburn
Beams (All Steel)—
T. C. Entwistle Co.
Saco-Lowell Shops
Beaming Combs—
T. C. Entwistle Co.
Easton & Burnham Machine Co.
Steel Heddle Mfg. Co.
Bearings (Roller)—
Charles Bond Company
Bearings (Shaft)—
Charles Bond Company
William Sellers & Co., Inc.
Woods, T. B. & Sons Co.
Bearings (Textile Machinery)—
Charles Bond Company
Belt Conveyors—
Link-Belt Co.
Wickwire Spencer Steel Co.
Belt Conveyors (Spiral and Woven)—
Wickwire Spencer Steel Co.
Belt Fasteners—
Flexible Steel Lacing Co.
Belt Tighteners—
Charles Bond Company
Link-Belt Co.
Woods, T. B. & Sons Co.
Belting—
The Akron Belting Co.
Charles Bond Company
Charlotte Leather Belting Co.
Chicago Belting Co.
Druid Oak Belting Co.
Graton & Knight Co.
Edward R. Ladew Co.
Fabreka Belting Co.
Philadelphia Belting Co.
Schachner Leather & Belting Co.
Belt Cement—
Charles Bond Company
Graton & Knight Co.
Edward R. Ladew Co.
Belt Dressing—
Charles Bond Company
Graton & Knight Co.
Belt Lacing—
Charles Bond Company
Chicago Belting Co.
Graton & Knight Co.
Edward R. Ladew Co.
Belting (Link)—
Charles Bond Company
Link-Belt Co.
Morse Chain Co.
Bicarbonate of Soda—
Mathieson Alkali Works, Inc.
Bleacheries—
Joseph Bancroft & Sons Co.
Bleaching Chemicals—
The Roessler & Hasslacher Chemical Co.
Bleaching Materials—
Arabol Mfg. Co.
Arnold, Hoffman & Co., Inc.
Borne, Scrymser Co.
Bosson & Lane
J. B. Ford Co.
United Chemical Products Corp.

Seydel Chemical Company
L. Sonneborn Sons, Inc.
United Chemical Products Co.
Wolf, Jacques & Co.
Bobbins Holders—
Fournier & Lemoine
Bobbins and Spools—
American Bobbins Co.
David Brown Co.
Courtney, Dana S. Co.
Draper Corporation
Lestershire Spool & Mfg. Co.
Lowell Shuttle Co.
Walter L. Parker Co.
Steel Heddle Mfg. Co.
Boxes—
Wilts Veneer Co.
Box Shocks—
Wilts Veneer Co.
Blowers and Blower Systems—
Carrier Engineering Co.
Parks-Cramer Co.
Breton Mineral—
Borne, Scrymser Co.
Brushes—
Atlanta Brush Co.
Curtis & Marble Machine Co.
Brushing Machine—
Curtis & Marble Machine Co.
Bobbin Stripper—
Terrell Machine Co.
Brooms—
Pioneer Broom Co.
Bushings (Bronze)—
Moccasin Bushing Co.
Calenders—
H. W. Butterworth & Sons Co.
B. F. Perkins & Son, Inc.
Textile Finishing Machinery Co.
Calender Roll Grinders—
B. S. Roy & Son Co.
Cards—
Saco-Lowell Shops
Whitlin Machine Works
Woonsocket Machine & Press Co., Inc.
Card Clothing—
Ashworth Bros.
Charlotte Mfg. Co.
Howard Bros. Mfg. Co.
Wickwire Spencer Steel Co.
Card Grinding Machinery—
Dronsfield Bros.
Easton & Burnham Machine Co.
T. C. Entwistle Co.
Roy, B. S. & Son Co.
Saco-Lowell Shops
Whitlin Machine Works
Woonsocket Machine & Press Co., Inc.
Card Stripper—
Abington Textile Machinery Works
Carrier Aprons—
Link-Belt Co.
Wickwire Spencer Steel Co.
Caustic Potash—
A. Klipstein & Co.
Castings (Brass and Bronze)—
Moccasin Bushing Co.
Caustic Soda—
Arnold, Hoffman & Co., Inc.
A. Klipstein & Co.
Mathieson Alkali Works, Inc.
Chain Belts and Drives—
Charles Bond Company
Link-Belt Co.
Morse Chain Co.
The Whitney Manufacturing Co.
Chemicals—
J. B. Ford Co.
Hart Products Corp.
A. Klipstein & Co.
Mathieson Alkali Works, Inc.
Seydel Chemical Co.
Seydel-Woolley Co.
L. Sonneborn Sons, Inc.
United Chemical Products Corporation.
Jacques Wolf & Co.
Cleaning Agents—
Oakite Products, Inc.
Jacques Wolf & Co.
Cloth Presses—
Economy Baler Co.
Clutches (Friction)—
Charles Bond Company
Textile Finishing Machinery Co.
Woods, T. B. Sons Co.
Cloth Winders and Doublers—
Curtis & Marble Machine Co.
Clutch Spindles—
Fournier & Lemoine
Coal Handling Machinery—
Link-Belt Co.
Combs—
Steel Heddle Mfg. Co.
Combs (Beamers, Warpers, Slashers)—
Easton & Burnham Machine Co.
T. C. Entwistle Co.
Commission Merchants—
Catlin & Co.
The Farish Co.
J. H. Lane & Co.
Mauney Steel Co.
Ridley, Watts & Co.
Compressors (Air)—
Allis-Chalmers Mfg. Co.
Condensers—
Allis-Chalmers Mfg. Co.
Conditioning Machines—
American Moistening Co.

Cones (Paper)—
Sunoco Products Co.
Cone Vice Couplings—
William Sellers & Co., Inc.
Controllers, Electric—
Cutler-Hammer Mfg. Co.
Conveying Systems—
Link-Belt Co.
Coolers (Air)—
—See Humidifying Apparatus.
Cotton—
Arkansas Cotton Grower's Co-operative Association.
Lesser-Goldman Cotton Co.
Newburger Cotton Co.
Wm. & York Wilson.
Cotton Machinery—
Ashworth Bros.
Barber-Colman Co.
Collins Bros. Machine Co.
Crompton & Knowles Loom Works
Dixon Lubricating Saddle Co.
Draper Corporation
T. C. Entwistle Co.
Fales & Jenks Machine Co.
Foster Machine Co.
H. & B. American Machine Co.
Rodney Hunt Machine Co.
National Ring Traveler Co.
Roy, B. S. & Son
Saco-Lowell Shops
Southern Spindle & Flyer Co.
Stafford Co., The
Terrell Machine Co.
Tolhurst Machine Works
Universal Winding Co.
Whitlin Machine Works
Whitney Spinning Ring Co.
Woonsocket Machine & Press Co., Inc.
Cotton Openers and Lappers—
Saco-Lowell Shops
Whitlin Machine Works
Woonsocket Machine & Press Co., Inc.
Cotton Softeners—
Arabol Mfg. Co.
Arnold, Hoffman & Co., Inc.
Borne, Scrymser Co.
Bosson & Lane
Hart Products Corp.
A. Klipstein & Co.
Seydel Chemical Co.
Seydel-Woolley Co.
L. Sonneborn Sons, Inc.
United Chemical Products Corporation.
Wolf, Jacques & Co.
Cotton Waste Machinery—
Saco-Lowell Shops
Whitlin Machine Works
Woonsocket Machine & Press Co., Inc.
Couplings (Shaft)—
Charles Bond Company
William Sellers & Co., Inc.
Woods, T. B. Sons Co.
Cranes—
Link-Belt Co.
Dobby Chain—
Crompton & Knowles Loom Works
Rice Dobby Chain Co.
Doffing Boxes—
Rogers Fibre Co.
Doublers—
Saco-Lowell Shops
Textile Finishing Machinery Co.
Universal Winding Co.
Dubbers (Yarn)—
Foster Machine Co.
Drives (Silent Chain)—
Charles Bond Company
Link-Belt Co.
Morse Chain Co.
Drop Wires—
Crompton & Knowles Loom Works
Draper Corporation
Hopedale Mfg. Co.
R. I. Warp Stop Equipment Co.
Dryers (Centrifugal)—
Roy, B. S. & Son Co.
Tolhurst Machine Co.
Dyeing, Drying, Bleaching and Finishing Machinery—
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Cocker Machine & Foundry Co.
Franklin Process Co.
Perkins, B. F. & Sons, Inc.
Rodney Hunt Machine Co.
Textile Finishing Machinery Co.
Dyestuffs and Chemicals—
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Bosson & Lane
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corporation.
A. Klipstein & Co.
National Aniline & Chemical Co.
Newport Chemical Works
Chas. H. Stone
United Chemical Products Corp.
Wolf, Jacques & Co.
Dye Works—
Franklin Process Co.
Electric Fans—
Allis-Chalmers Mfg. Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.
Electric Hoists—
Allis-Chalmers Mfg. Co.
Link-Belt Co.
Electric Lighting—
Allis-Chalmers Mfg. Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.
Electric Motors—
Allis-Chalmers Mfg. Co.

Charles Bond Company
General Electric Co.
Westinghouse Electric & Mfg. Co.
Electric Supplies—
Cooper-Hewitt Electric Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.
Elevators—
Link-Belt Co.
Engineers (Mill)—
—See Architects and Mill Engineers
Engineers (Ventilating)—
Bahnson Co.
Carrier Engineering Corp.
Parks-Cramer Co.
See also Ventilating Apparatus.
Engines (Steam, Oil, Gas, Pumping)—
Allis-Chalmers Mfg. Co.
Sydnor Pump & Well Co.
Expert Textile Mechanic—
J. D. Hollingsworth
Extractors—
Tolhurst Machine Works
Fences, Iron and Wire—
Page Fence and Wire Products Assn
Wickwire Spencer Steel Co.
Spaulding Fibre Co.
Fibre Baskets—
Spaulding Fibre Co.
Fibre Specialties—
Diamond State Fibre Co.
Rogers Fibre Co.
Spaulding Fibre Co.
Finishing Compounds—
Arnold, Hoffman & Co., Inc.
Borne, Scrymser Co.
Hart Products Corp.
A. Klipstein & Co.
Seydel Chemical Company
Seydel-Woolley Co.
L. Sonneborn Sons Co.
United Chemical Products Corp.
Jacques Wolf & Co.
Finishing Machinery—
—See Dyeing, Drying, Bleaching and Finishing
Flat Wall Paint—
E. I. du Pont de Nemours & Co., Inc.
Floor Stands—
Wood's, T. B. Sons Co.
Fluted Rolls—
Collins Bros. Machine Co.
Fales & Jenks Machine Co.
Saco-Lowell Shops
Woonsocket Machine & Press Co., Inc.
Whitlin Machine Works
Flyer Pressers and Overhaulers—
Saco-Lowell Shops
Southern Spindle & Flyer Co.
Whitlin Machine Works
Woonsocket Machine & Press Co., Inc.
Flyers—
Saco-Lowell Shops
Southern Spindle & Flyer Co.
Whitlin Machine Works
Frames—
Steel Heddle Mfg. Co.
Friction Clutches—
Wood's, T. B. Sons Co.
—See Clutches
Garment Dyeing Machines—
Klauder Weldon Dyeing Machine Division, H. W. Butterworth & Sons Co.
Garnett Roll Grinders—
B. S. Roy & Son Co.
Gearing (Silent Flexible)—
Link-Belt Co.
Gears—
Charles Bond Company
Ferguson Gear Co.
Gears (Silent)—
Charles Bond Company
Ferguson Gear Co.
Grate Bars—
Scriver Iron Works (McNaughton)
Thomas Grate Bar Co.
Grab Buckets—
Link-Belt Co.
Greases—
Borne, Scrymser Co.
N. Y. & N. J. Lubricant Co.
L. Sonneborn Sons Co.
United Chemical Products Corporation
Jacques Wolf & Co.
Gudgeon Rolls—
Easton & Burnham Machine Co.
Roy, B. S. & Son Co.
Washburn
Hand Knotters—
Barber-Colman Co.
Hand Stripping Cards—
Howard Bros. Mfg. Co.
Hangers (Ball and Socket)—
Charles Bond Company
William Sellers & Co., Inc.
T. B. Wood's Sons Co.
Hangers (Shaft)—
Charles Bond Company
William Sellers & Co., Inc.
Wood's T. B. & Sons Co.
Harness and Frames—
—See Heddles and Frames
Heddles and Frames—
Garland Mfg. Co.
Howard Bros. Mfg. Co.
Steel Heddle Mfg. Co.
L. S. Watson Mfg. Co.

CLASSIFIED LIST OF ADVERTISERS

High Speed Warpers—
Barber-Colman Co.

Hopper-Feed Hand Stokers—
The J. H. Williams Co.

Hosiery Dyeing Machines—
Cocker Machine & Foundry Co.

Klauder Weldon Dyeing Machine Division, H. W. Butterworth & Sons Co.

Humidity and Air Conditioning Apparatus—
American Moistening Co.

The Bahnsen Co.

Carrier Engineering Corp.

Parks-Cramer Co.

R. I. Humidifier & Ventilating Co.

Humidity Controllers—
American Moistening Co.

The Bahnsen Co.

Carrier Engineering Corp.

Parks-Cramer Co.

R. I. Humidifier & Ventilating Co.

Hydro-Extractors—
Tolhurst Machine Co.

Hydrogen Peroxide—
The Roessler & Hasslacher Chemical Co.

Hydrosulphites—
Jacques Wolf & Co.

Indigo Dyeing Machinery—
H. W. Butterworth & Sons Co.

Cocker Machine & Foundry Co.

Textile Finishing Machinery Co.

Knit Goods Finishing Machines—
Kaumagraph Co.

Merrow Machine Co., The

Knitting Lubricants—
Borne, Scrymser Co.

Laundry Machinery—
Tolhurst Machine Works

Knotters—
Barber-Colman Co.

Merrow Machine Co., The

Landscape Architect—
E. S. Draper

Leather Packings—
Charles Bond Company

Graton & Knight Co.

Edward R. Ladew Co.

Leather Loom Pickers—
Charles Bond Company

Graton & Knight Co.

E. H. Jacobs Mfg. Co.

Leather Strapping—
Charles Bond Company

Graton & Knight Co.

Edward R. Ladew Co.

Leather Straps—
Graton & Knight Co.

E. H. Jacobs Mfg. Co.

Liquid Chlorine—
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Mathieson Alkali Works, Inc.

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Crompton & Knowles Loom Works

Draper Corporation

Hopeland Mfg. Co.

Stafford Co., The

Loom Drop Wires—
Crompton & Knowles Loom Works

R. I. Warp Stop Equipment Co.

Steel Heddle Mfg. Co.

Loom Harness—
Atlanta Harness & Reed Mfg. Co.

Garland Mfg. Co.

Steel Heddle Mfg. Co.

Loom Pickers—
Charles Bond Company

Garland Mfg. Co.

Graton & Knight Co.

E. H. Jacobs Mfg. Co.

Edward R. Ladew Co.

Loom Reeds—
Atlanta Harness & Reed Mfg. Co.

Steel Heddle Mfg. Co.

Loom Supplies—
Charles Bond Company

E. H. Jacobs Mfg. Co.

Lubricants—
Adam Cooks Sons, Inc.

Borne, Scrymser Co.

N. Y. & N. J. Lubricant Co.

L. Sonneborn Sons, Inc.

United Chemical Products Corporation.

Lug Straps—
Charles Bond Company

Graton & Knight Co.

E. H. Jacobs Mfg. Co.

Machinery Enamel—
E. I. du Pont de Nemours & Co., Inc.

Mangles—
H. W. Butterworth & Sons Co.

Textile Finishing Machinery Co.

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Kaumagraph Co.

Measuring and Folding Machines—
Curtis & Marble Machine Co.

Textile Finishing Machinery Co.

Mercerizing Machinery—
H. W. Butterworth & Sons Co.

Cocker Machine & Foundry Co.

Textile Finishing Machinery Co.

Metal (Non-Corrosive)—
Aluminum Company of America

American Nickel Corporation.

Metal Paint—
E. I. du Pont de Nemours & Co., Inc.

Meters—
Allis-Chalmers Mfg. Co.

General Electric Co.

Westinghouse Electric & Mfg. Co.

Mill Architects—
—See Architects.

Mill Lighting—
—See Electric Lighting.

Mill Starches—
Arnold, Hoffman & Co., Inc.

Corn Products Refining Co.

Keever Starch Co.

Penick & Ford, Ltd.

Stein, Hall & Co.

United Chemical Products Corporation.

Mill Supplies—
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Dixon Lubricating Saddle Co.

Garland Mfg. Co.

E. H. Jacobs Mfg. Co.

Textile Mill Supply Co.

Thomas Grate Bar Co.

Mill Trucks—
Spaulding Fibre Co.

Mill White—
E. I. du Pont de Nemours & Co., Inc.

Napper Clothing—
Howard Bros. Mfg. Co.

Wickwire Spencer Steel Co.

Monopole Oil—
United Chemical Products Corporation

Jacques Wolf & Co.

Napper Roll Grinders—
Allis-Chalmers Mfg. Co.

General Electric Co.

B. S. Roy & Son Co.

Westinghouse Electric & Mfg. Co.

Oils—
Arnold, Hoffman & Co., Inc.

Borne, Scrymser Co.

N. Y. & N. J. Lubricant Co.

L. Sonneborn Sons, Inc.

United Chemical Products Corporation.

Wolf, Jacques & Co.

Oils (Rayon)—
Borne, Scrymser Co.

Jacques Wolf & Co.

Opening Machinery—
H. & B. American Machine Co.

Saco-Lowell Shops.

Overhaulers—
Saco-Lowell Shops

Southern Spindle & Flyer Co.

Overseaming and Overeding Machines—
Southern Spindle & Flyer Co.

Merrow Machine Co.

Paints—
Aluminum Co. of America

The Gildan Co.

Trirod Paint Co.

Patents—
Paul B. Eaton

Siggers & Siggers

Perforated Machinery Guards—
Wickwire Spencer Steel Co.

Perforated Metals—
Wickwire Spencer Steel Co.

Picker Gears—
Cocker Machinery & Foundry Co.

Pickers (Leather)—
Charles Bond Company

Garland Mfg. Co.

Graton & Knight Co.

E. H. Jacobs Mfg. Co.

Edward R. Ladew Co.

Pickers and Lappers—
Saco-Lowell Shops

Whitin Machine Works.

Woonsocket Machine & Press Co., Inc.

Picker Sticks—
Charles Bond Company

Garland Mfg. Co.

Piece Dyeing Machinery—
H. W. Butterworth & Sons Co.

Cocker Machine & Foundry Co.

Rodney Hunt Machine Co.

Textile Finishing Machinery Co.

Pipe and Fittings—
Parks-Cramer Co.

Portable Elevators—
Link-Belt Co.

Power Transmission Machinery—
Allis-Chalmers Mfg. Co.

Charles Bond Company.

Hyatt Roller Bearing Co.

Link-Belt Co.

Morse Chain Co.

William Sellers & Co., Inc.

Preparatory Machinery (Cotton)—
H. & B. American Machine Co.

Saco-Lowell Shops.

Whitin Machine Works.

Woonsocket Machine & Press Co., Inc.

Pinboards—
Rodney Hunt Machine Co.

Washburn.

Porcelain Guides and Parts—
Rodney Hunt Machine Co.

Page-Madden Co., Inc.

Presses—
Economy Baler Co.

Saco-Lowell Shops.

Pulleys (Cast Iron)—
Charles Bond Company

William Sellers & Co., Inc.

Wood's, T. B. Sons Co.

Pumps—
Backmer Pump Co.

Pumps (Boiler Feed; also Centrifugal)—
Allis-Chalmers Mfg. Co.

Syndor Pump & Well Co.

Presses—
Collins Bros. Machine Co.

Quill Boards—
Washburn.

Quillers—
Crompton & Knowles Loom Works

Eastwood, Benj. Co.

Universal Winding Co.

Whitin Machine Works.

Quill Cleaners—
Terrell Machine Co.

Raw Stock Machines—
Kaluder Weldon Dyeing Machine Division, H. W. Butterworth & Sons Co.

Rayon Oils—
United Chemical Products Corporation.

Receptacles—
Diamond State Fibre Co.

Economy Baler Co.

Rogers Fibre Co.

Spaulding Fibre Co.

Reels—
H. W. Butterworth & Sons Co.

Cocker Machine & Foundry Co.

Rodney Hunt Machine Co.

Rings—
Saco-Lowell Shops

Whitinsville Spinning Ring Co.

Ring Spinning Frames—
Fales & Jenks Machine Co.

H. & B. American Machine Co.

Saco-Lowell Shops.

Textile Finishing Machinery Co.

Whitin Machine Works.

Ring Travelers—
Dary Ring Traveler Co.

National Ring Traveler Co.

Victor Ring Traveler Co.

U. S. Ring Traveler Co.

Roller Leather—
A. C. Lawrence Leather Co.

Roll Machines—
Kaluder Weldon Dyeing Machine Division, H. W. Butterworth & Sons Co.

Rolls—
American Bobbin Co.

H. W. Butterworth & Sons Co.

Collins Bros. Machine Co.

Fales & Jenks Machine Co.

Rodney Hunt Machine Co.

Saco-Lowell Shops.

Southern Spindle & Flyer Co.

Textile Finishing Machinery Co.

Whitin Machine Works.

Woonsocket Machine & Press Co., Inc.

Rolls (Metal)—
Rodney Hunt Machine Co.

Rolls (Rubber)—
Rodney Hunt Machine Co.

Rolls (Wood)—
Rodney Hunt Machine Co.

Washburn.

Roller Bearings—
Charles Bond Company.

Roving Cans—
Spaulding Fibre Co.

Roving Cans and Boxes—
Rogers Fibre Co.

Roving Machinery—
Saco-Lowell Shops

Whitin Machine Works.

Woonsocket Machine & Press Co., Inc.

Saddles—
Dixon Lubricating Saddle Co.

Salt—
International Salt Co.

Sanitary Equipment—
Vogel, Joseph A. Co.

Sanitary Fountains—
—See Drinking Fountains

Scales—
American Kron Scale Co.

Scallop Machines—
Merrow Machine Co., The.

Scouring Powders—
Bosson & Lane

Denison Mfg. Co.

Ford, J. B. Co.

Scrubbing and Cleaning Powders—
The Denison Mfg. Co.

Sesquicarbonate of Soda—
Mathieson Alkali Works, Inc.

Selling Agents—
Deering, Milliken & Co.

Reeves Bros.

Woodward, Baldwin & Co.

Selling Agents (Cotton Goods)—
Amory, Browne & Co.

Curran & Barry.

Deering, Milliken & Co.

Hunter Mfg. & Commission Co.

W. H. Langley & Co.

Leslie, Evans & Co.

Reeves Bros.

Wellington, Sears & Co.

Sewing Machines—
Merrow Machine Co.

Sewing Machines and Supplies—
Curtis & Marble Machine Co.

Shafting, Hangers, Etc.—
—See Power Transmission Machinery.

Shafting—
William Sellers & Co., Inc.

Shear Grinders—
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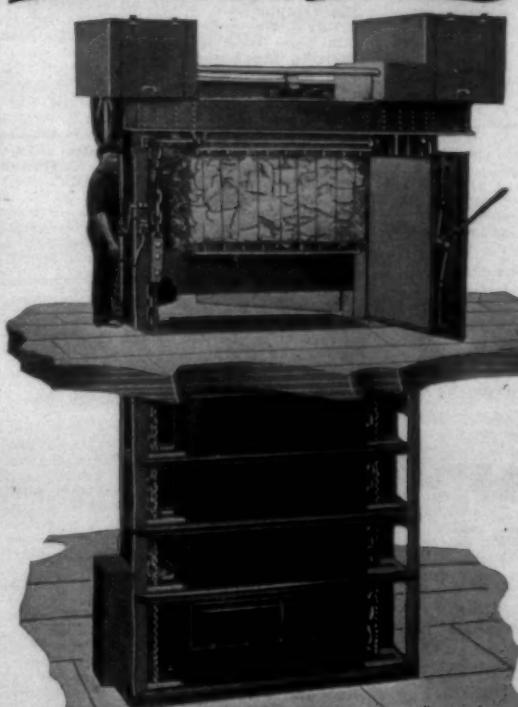
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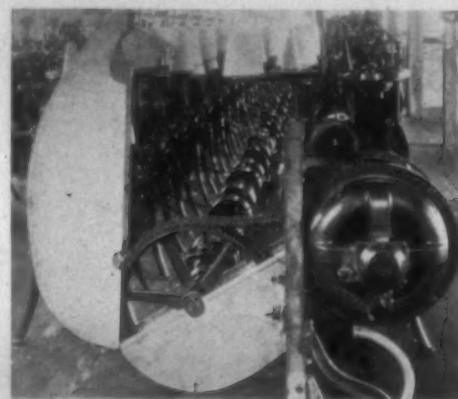
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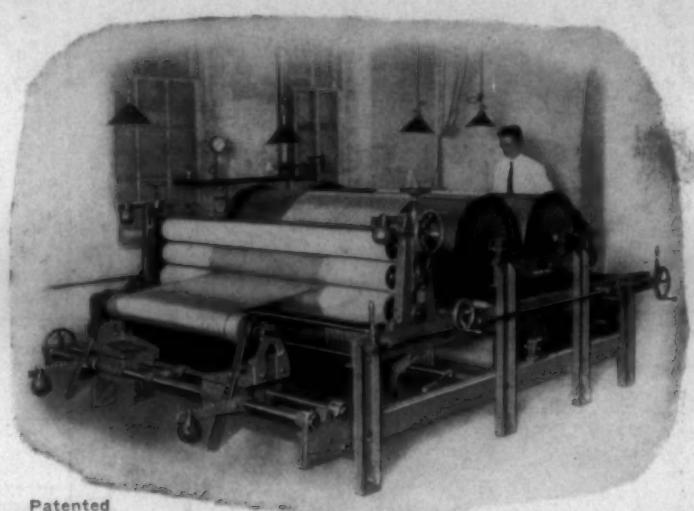
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